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The University of the  
Philippines

Bulletin No. 12

May, 1926

GENERAL CATALOGUE  
1926-1927



MANILA  
BUREAU OF PRINTING  
1926

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## Contents

	Page
<b>THE UNIVERSITY .....</b>	<b>5-90</b>
Calendar 5; Administrative Officers 7; The Board of Regents 8; The University Council 9; Standing Council Committees 10; The Faculty of Instruction 14.	
<b>GOVERNMENT AND HISTORY OF THE UNIVERSITY .....</b>	<b>37</b>
The University Charter 37; Election of Council and Alumni Representatives to Board of Regents 42; Historical Sketch 43.	
<b>A. UNDERGRADUATE COURSES .....</b>	<b>45</b>
General Provisions 45; Entrance Requirements 45; Methods of Admission 45; Subject Matter of the Entrance Examinations 46; Laboratory Notebooks 50; Entrance Deficiency 50; Admission of Special Students 50; Foreign Students 51; Admission to Advanced Standing 51; Departments of Administration and Instruction 51; Registration 52; Credits 52; Grades of Scholarship 52; Conditions and Failures 52; Military Science and Physical Training 53; Athletic Association 53.	
<b>B. GENERAL INFORMATION .....</b>	<b>54</b>
Tuition Fees for all Schools and Colleges 54; Deposits 55; Miscellaneous Fees 55; Fees Not Returnable 56; Students' Expenses 56; Rules on Attendance 56; Scholarships 56; Titles, Certificates and Degrees 58; Caps, Gowns, and Regalia 59; Commencement Exercises 59.	
<b>C. GRADUATE STUDY .....</b>	<b>60</b>
Advanced Degrees 60; Rules Governing Graduate Study 60; Admission Requirements 60; Regular Registration 61; Special Registration 62; Admission to Candidacy 62; Requirements for Graduation 63; Theses 64; Scholarship and Failures 66; Awarding of Degrees 66; Further Opportunities for Graduate Study 66.	
<b>THE UNIVERSITY LIBRARIES .....</b>	<b>69</b>
<b>DEPARTMENT OF MILITARY SCIENCE AND TACTICS .....</b>	<b>75</b>
<b>DEPARTMENT OF PHYSICAL EDUCATION .....</b>	<b>87</b>
<b>THE COLLEGE OF LIBERAL ARTS .....</b>	<b>91-164</b>
Administrative Officers, Committees and Business Directory 91; General Information 93; Outlined Curricula 100; General Culture Courses 105.	
<i>Courses of Instruction.</i> Anthropology and Sociology 108; Botany 113; Chemistry 116; Economics and Business Administration 122; French 135; Geology and Geography 136; Meteorology and Astronomy 138; German 140; History 141; Library Science 144; Mathematics 147; Oriental Languages 150; Philosophy 152; Physics 158; Political Science 157; Social Science 160; Spanish 161; Zoölogy 162.	
<b>JUNIOR COLLEGE .....</b>	<b>165-176</b>
Officers and Committees 165; Information 166; Courses of Instruction 167.	
<b>COLLEGE OF EDUCATION .....</b>	<b>177-208</b>
Officers and Committees 177; Faculty 178; Information 179; Curricula and Majors 182; Courses of Instruction 198.	
<b>COLLEGE OF ENGINEERING .....</b>	<b>209-230</b>
Officers and Committees 209; Faculty 210; History and General Information 211; Courses of Instruction 214; Curricula 226; School of Surveying 230.	

## CONTENTS

	Page
<b>COLLEGE OF LAW .....</b>	231-258
Officers 231; Faculty 232; History, Information and Rules 234; Undergraduate Semestral Courses 242; Four-Year Curriculum 251; Post-Graduate Review Course 252; Graduate Semestral Courses 253; Law-Political Science Curriculum 256; Vocational Courses 258.	
<b>COLLEGE OF MEDICINE.....</b>	259-303
Officers and Committees 259; Faculty 261; Historical Sketch and Description 265; Information and Regulations 268; Organization of Instruction and Outline of Courses 175.	
<i>Departments and Courses of Instruction.</i> Anatomy 278; Physiology and Biochemistry 279; Pathology and Bacteriology 280; Parasitology and Tropical Medicine 283; Pharmacology 285; Hygiene and Preventive Medicine 285; Medicine 287; Surgery 290; Obstetrics 294; Pediatrics 295; Eye, Ear, Nose, and Throat 297; Gynecology 299; Legal Medicine 300.	
<b>SCHOOL OF DENTISTRY .....</b>	305-322
Officers and Committees 305; Faculty 306; Information 308; Courses of Study 313; Organization 314; Semestral Courses 315.	
<b>SCHOOL OF PHARMACY.....</b>	323-344
Officers and Committees 323; Information and Regulations 324; Curricula 330; Courses of Instruction 331.	
<b>COLLEGE OF AGRICULTURE.....</b>	345-395
Officers and Committees 345; Faculty 346; General Information 351; Regulations 354; Description of Courses 362; Schedule of Curricula 386.	
<b>COLLEGE OF VETERINARY SCIENCE.....</b>	397-412
Officers and Committees 397; Faculty 398; History, Rules and Requirements 399; Semestral Courses 402; Outline of Curriculum 411.	
<b>SCHOOL OF FORESTRY.....</b>	413-427
Officers 413; Faculty 414; History and General Information 415; Outlines of Courses 418; Semestral Courses 420.	
<b>CONSERVATORY OF MUSIC.....</b>	429-441
Officers 429; Faculty 430; Information 432; Courses 433; Regulations and Special Information 438.	
<b>SCHOOL OF FINE ARTS.....</b>	443-456
Officers 443; Faculty 444; Information and Regulations 445; Organization and Description of Courses 447; Reorganized Curriculum 454.	

# The University Calendar

[For the academic year 1926-1927]

## THE REGULAR SESSION—FIRST SEMESTER

Days of the week and month	Events
Tuesday, June 1 to Thursday, June 3-----	1. Mathematics, June 1, 8 to 10 a.m. Entrance tests
Tuesday, June 1 to Saturday, June 5----- Monday, June 7-----	2. Physics, June 2, 8 to 10 a.m. 3. Intelligence test, June 3, 8 to 10 a.m.
Tuesday, June 1 to Saturday, June 12----- Monday, June 7 to Saturday, June 12-----	4. English, June 3, 2 to 4 p.m. Registration of students, School of Forestry. Classes begin, School of Forestry. Physical examination in Manila.
Wednesday, June 9 to Saturday, June 12----- Saturday, June 12, 5 p.m.----- Monday, June 14----- Monday, July 5----- Friday, August 13----- Monday, October 11 to Saturday, October 16----- Sunday, October 17 to Sunday, October 24-----	Registration and physical examination of students in Colleges of Agriculture and Veterinary Science. Registration of students in Manila. Opening exercises. Classes begin. Legal holiday. Legal holiday. Final examination. Intersemester.

## THE REGULAR SESSION—SECOND SEMESTER

Monday, October 25 to Wednesday, October 27-----	Registration of students in colleges and schools of the University.
Thursday, October 28-----	Classes begin.
Thursday, November 25-----	Legal holiday.
Tuesday, November 30-----	Legal holiday.
Thursday, December 23-----	Christmas vacation begins.
Sunday, January 2-----	Christmas vacation ends.
Monday, January 3-----	Exercises resumed in all colleges and schools.
Tuesday, February 22-----	Legal holiday.
Monday, March 7 to Monday, March 14-----	Final examinations in all colleges and schools.
Tuesday, March 8-----	Degree course in School of Forestry ends.
Saturday, March 12-----	Ranger course in School of Forestry ends.
Friday, March 11-----	Class Day, Ranger Course.
Saturday, March 12-----	Commencement Day, Ranger Course.
Friday, March 18, morning-----	University Council meets to recommend candidates for graduation.
Friday, March 18, afternoon-----	Board of Regents meets to approve candidates for graduation.
Saturday, March 19-----	Commencement, School of Fine Arts.
Monday, March 21, morning-----	Commencement, School of Nursing.
Monday, March 21, evening-----	Commencement, Conservatory of Music.
Tuesday, March 22-----	Commencement Day for all colleges and schools conferring degrees.
Thursday, March 24-----	Summer vacation begins.

## SUMMARY OF CLASS DAYS

[Holidays, final examinations, and vacation excluded]

First semester	Second semester
Mondays-----	Mondays-----
Wednesdays-----	Wednesdays-----
Fridays-----	Fridays-----
Total of class days-----	Total of class days-----
Tuesdays-----	Tuesdays-----
Thursdays-----	Thursdays-----
Saturdays-----	Saturdays-----
Total of class days-----	Total of class days-----
Total for first semester-----	Total for second semester-----

Total number of class days during the school year, 199

## THE UNIVERSITY CALENDAR

## SUMMARY OF CLASS DAYS BY MONTH

First semester							Second semester						
	M.	T.	W.	Th.	F.	S.		M.	T.	W.	Th.	F.	S.
June.....	3	3	3	2	2	2	October.....	5	4	4	3	1	1
July.....	3	4	4	5	5	5	November.....	5	4	3	4	4	4
August.....	5	5	4	4	3	4	December.....	3	3	4	3	3	3
September....	4	4	5	5	4	4	January.....	5	4	4	4	4	4
October....	1	1	1	1	2	2	February.....	4	3	4	4	4	4
Total.....	16	17	17	17	16	17	March.....	1	1	1	1	1	1
Total for first semester.....							Total.....	17	15	17	16	17	17
							Total for second semester.....						
	Total number of class days during the school year, 199												

## SUMMER-1926

## MANILA

Friday, April 9 to Saturday, April 10.....	Registration of students in Manila.
Monday, April 12.....	Classes begin in Manila.
Monday, May 24 to Tuesday, May 25.....	Final examination in Manila.

## BAGUIO

Friday, April 9 to Saturday, April 10.....	Registration of students in Baguio.
Monday, April 12.....	Classes begin in Baguio.
Monday, May 17th to Tuesday, May 18th.....	Final examination in Baguio.

## PUERTO GALERA

On or before Saturday, April 3rd.....	Final arrangements for departure to Puerto Galera.
Friday, April 9th.....	Boat leaves Manila.
Monday, April 12th.....	Classes begin in Puerto Galera.
Saturday, May 16th.....	Session ends.
Sunday, May 16th.....	Boat returns to Manila.

## **Administrative Officers of the University**

---

**RAFAEL PALMA**, President.

**FELIPE ESTELLA**, Secretary.

**VICENTE CARMONA**, Treasurer of the Philippine Islands, Treasurer *ex officio*.

**BEN F. WRIGHT**, Auditor of the Philippine Islands, Auditor *ex officio*.

### **ADMINISTRATIVE OFFICERS OF THE COLLEGES AND SCHOOLS**

#### **DEANS OF COLLEGES AND SCHOOL WHICH CONFER DEGREES**

*Together with the President of the University, this body constitutes the Executive Committee of the University Council*

**FERNANDO CALDERON**, College of Medicine.

**JORGE BOCOBO**, College of Law.

**GREGORIO SAN AGUSTIN**, College of Veterinary Science.

**HERMAN W. REYNOLDS**, College of Engineering.

**CHARLES FULLER BAKER**, College of Agriculture.

**FRANCISCO BENITEZ**, College of Education.

**MAXIMO M. KALAW**, College of Liberal Arts.

**ARTHUR F. FISCHER**, School of Forestry.

#### **DEAN OF COLLEGE AND DIRECTORS OF SCHOOLS WHICH DO NOT CONFER DEGREES**

**JOSE J. MIRASOL**, Junior College of the University.

**ALEXANDER LIPPAY**, Conservatory of Music.

**RAFAEL ENRIQUEZ**, School of Fine Arts.

#### **DIRECTORS IN THE COLLEGE OF MEDICINE**

**MARIANO V. DEL ROSARIO**, School of Pharmacy.

**DOMICIANO J. SANDOVAL**, School of Dentistry.

#### **GENERAL COLLEGE OFFICERS ATTACHED TO CENTRAL OFFICE**

**GABRIEL A. BERNARDO**, University Librarian.

**JOHN McBRIDE**, University Marshal.

**RAMONA S. TIRONA**, Dean of Women, Colleges of Liberal Arts, Education, and Law.

**AMPARO V. CONCHA-BRILLANTES**, Dean of Women, College of Medicine, including Schools of Pharmacy and Dentistry.

**REGINO R. YLANAN**, Physical Director.

# The Board of Regents

## REGENTS EX OFFICIO

Honorable EUGENE A. GILMORE, Vice-Governor of the Philippine Islands and Chairman of the Board of Regents.  
Honorable RAFAEL PALMA, President of the University.  
Honorable LUTHER B. BEWLEY, Director of Education.  
Honorable CAMILO OSIAS, Chairman of the Committee on Public Instruction of the Philippine Senate.  
Honorable ALEJO LABRADOR, Chairman of the Committee on Public Instruction of the House of Representatives.

## APPOINTED REGENTS

Honorable HORACE B. POND, Term expires 1928.  
Honorable JOSE ESCALER, Term expires 1926.  
Honorable FRANCISCO ORTIGAS, Term expires 1928.

## ELECTED REGENTS

### ALUMNI:

MARIA PAZ MENDOZA-GUAZON, Term expires 1927.  
VICENTE DEL ROSARIO, Term expires 1928.

### FACULTY:

ARTURO GARCIA, Term expires 1927.

## STANDING COMMITTEES OF THE BOARD OF REGENTS

### Agriculture, Forestry, and Veterinary Science

Regent JOSE ESCALER, Chairman.  
Regent VICENTE DEL ROSARIO.  
Regent LUTHER B. BEWLEY.

### Buildings and Grounds

President RAFAEL PALMA, Chairman.  
Vice-Governor EUGENE A. GILMORE.  
Regent FRANCISCO ORTIGAS.

### Education

Regent LUTHER B. BEWLEY, Chairman.  
Regent CAMILO OSIAS.  
Regent MARIA PAZ MENDOZA-GUAZON.

### Engineering

Regent VICENTE DEL ROSARIO, Chairman.  
Vice-Governor EUGENE A. GILMORE.  
Regent ARTURO GARCIA.

### Finance

Regent ALEJO LABRADOR, Chairman.  
President RAFAEL PALMA.  
Regent HORACE B. POND.

### Law

Regent FRANCISCO ORTIGAS, Chairman.  
Regent JOSE ESCALER.  
Regent MARIA PAZ MENDOZA-GUAZON.

### Legislation

Regent CAMILO OSIAS, Chairman.  
Regent ALEJO LABRADOR.  
President RAFAEL PALMA.

### Liberal Arts

Regent MARIA PAZ MENDOZA-GUAZON, Chairman.  
Regent VICENTE DEL ROSARIO.  
Regent CAMILO OSIAS.

### Medicine

Regent HORACE B. POND, Chairman.  
Regent LUTHER B. BEWLEY.  
Regent FRANCISCO ORTIGAS.

### Music and Fine Arts

Regent ARTURO GARCIA, Chairman.  
Regent ALEJO LABRADOR.  
Regent HORACE B. POND.

### Personnel and Publications

President RAFAEL PALMA, Chairman.  
Regent JOSE ESCALER.  
Regent ARTURO GARCIA.

# The University Council

The University Council is composed of the President, the deans, the directors, and the professors, associate professors, and assistant professors of the several colleges and schools. Meetings ordinarily are held on the first Saturday of each month during school year, but the same may be held at such other times as the exigencies of the service may require. Names of the members on leave (inactive) are starred. One hundred and seventy-three active members are listed, a majority of whom constitutes a quorum. Council list corrected up to February 1, 1926.

## OFFICERS

President **RAFAEL PALMA**, Chairman ex officio  
Secretary **FELIPE ESTELLA**, Secretary ex officio

## MEMBERS

President Rafael Palma	Professors—Continued	Associate Professors—Ctd.
Secretary Felipe Estella *	Gokhale, V. D.	Bulatao, Emilio
Acting Secretary Serafin E. Macaraig	Gomez, Liborio *	Clemente, Amando
<i>Deans</i>	Gonzalez, B. M.	Concepcion, Isabelo
Baker, Charles F.	Guerrero, Luis	Espino, Rafael B.
Benitez, Francisco	Hocsom, Felix	Garcia, Faustino
Bocobo, Jorge	Johnson, C. P.	Gomez, Angel K.
Calderon, Fernando	Malcolm, George A.	Gutierrez, Perpetuo
Reynolds, Herman W.*	McBride, John	Lara, Hilario
Hyde, E. R. (Acting)	Noble, H. Lawrence	Lava, Vicente G.
Kalaw, Maximo M.	Obear, George B.	Leiva, Lamberto
Mirasol, Jose J.	Osborn, Lois Stewart	Leon, Walfrido de
Fischer, Arthur F.	Paz, Daniel de la	Manguerra, Mariano F.
San Agustin, Gregorio	Pendleton, R. L.	Mariano, Ramon
<i>Directors</i>	Reyes, Hermenegildo B.	McCracken, Ruth
Enriquez, Rafael	Reyes, Nicanor *	Mendiola, Nemesio B.
Rosario, Mariano V. del	Reyes, Teofilo	Mendoza-Guazon, Maria Paz
Sandoval, Domiciano J.	Rosario, Jose I. del	Nañagas, Juan C.
Lippay, Alexander	Roxas, Baldomero	Pflueger, Otto Wilhelm
<i>Professors</i>	Roxas, Manuel L.	Ramos, Eusebio F.
Albert, Jose	Salvosa, Luis R.	Reyes, Carmelo
Angeles, Sixto de los	Scheerer, Otto J.	Romulo, Carlos
Bautista, Ariston	Schultz, C. H.	Santos, Francisco O.
Beyer, H. Otley	Scott, Harold P.	Sinco, Vicente G.
Cuzner, Harold *	Sivickis, P. B.	Thomas, Esther E.
Donaldson, M. C.	Sison, Antonio G.	Tirona, Ramona S.
Eaton, L. S.	Tan, Vidal A.	Tolentino, Mariano
Edueque, Jose	Townsend, Henry S.	Uichanco, Leopoldo
Elayda, Inocencio	Ubaldo, Aristeo R.	Vilarde, Herminio
Espiritu, Jose A.	Veyra, Jaime C. de	Wicker, C. V.
Fernandez, Leandro H.*	West, Augustus P.	Ylanan, Regino R.
Garcia, Arturo	<i>Associate Professors</i>	Yule, Emma S.
	Acosta-Sison, Honoria	Zschokke, Theodore C.
	Alzona, Encarnacion	

\* On leave.

## THE UNIVERSITY

## MEMBERS—Continued

*Assistant Professors*

Abello, Tomas \*  
 Adriano, Felipe \*  
 Africa, Candido  
 Aguirre, Soledad  
 Alincastre, Cecilio  
 Aldecoa, Eladio  
 Alonso, Agustin S.  
 Apostol, Jose P.  
 Amos, Felipe R.  
 Angeles, Estanislao  
 Arrastia, Justo  
 Austria, Quirino  
 Au-Yeung, Sek Lim  
 Baja, Emanuel B.  
 Bernabe, Manuel  
 Bernardo, Gabriel A.  
 Borromeo, Canuto  
 Cantera, Angela B. de la  
 Caffizares, Miguel  
 Castillejo, Lino J.  
 Clemente, Leopoldo  
 Concepcion, M. V.  
 Concha-Brillantes, Amparo  
 Conger, Emma S.  
 Corcuera, A. Leynes  
 Cordero, Narciso \*  
 Domingo, Elias  
 Elin, Vladimir A.  
 Esquivel, Prudencio F.  
 Feliciano, Jose M.

Assistant Professors—Ctd.  
 Fernando, Antonio S.  
 Francisco, Fermin  
 Fronda, Francisco M.  
 Furhmann, L.  
 Gamboa, Melquiades J.  
 Gana, Mariano D.\*  
 Goto, Satoshi  
 Guevara, Romulo  
 Henares, Hilarion  
 Herrera-Batteke, Pilar P.  
 Hilario, Vicente  
 Jamias, Cristino  
 Johnson, L. B.  
 Lantin, Pedro T.  
 Llenando, Agustin  
 Limson, Marciiano  
 Lopez, Mariano C.  
 Macaraig, Serafin  
 Marafion, Joaquin  
 Maravillas, Filomeno  
 Marques-Benitez, Paz  
 Monserrat, Carlos  
 Natividad, Emilio  
 Navarro, Regino J.  
 Ocfemia, Gerardo O.  
 O'Connor-Pablo, Winifred  
 O'Leary, Thomas F.  
 Panlasigui, Isidoro  
 Pangalanban, Elias H.  
 Paz, Delfin de la  
 Pendleton, Anne M.

Assistant Professors—Ctd.  
 Quirino, Eliseo  
 Quisumbing, Eduardo  
 Quisumbing, Francisco  
 Racelis, Antonio P.  
 Raymundo, Mariano B.  
 Reyes, Jose S.\*  
 Roa, Manuel A.  
 Roman, Felipe R.  
 Rosario, Casto del  
 Rustia, Constancio  
 Rustia, Guillermo  
 Santiago, Francisco  
 Santos, Jose K.  
 Santos, M. M.  
 Sulit, Carlos  
 Sumulong, Manuel D.  
 Teodoro, Anastacio  
 Tienzo, Telesforo  
 Tiongan, Juan L.  
 Tubangui, Marcos  
 Tupas, Alberto  
 Valdez-Ventura, Maria  
 Valenzuela, Patrocinio \*  
 Vazquez, Antonio D.  
 Vibar, Toribio  
 Villegas, Anastacio  
 Villarama, Antonio  
 Villegas, Valente  
 Viterbo, Antonio  
 Vitug, Wenceslao  
 Zafra, Nicolas

\* On leave.

## STANDING COMMITTEES OF THE UNIVERSITY COUNCIL

1. *Executive Committee:*

Same composition as heretofore stated as provided in paragraph 2 of the constitution and by-laws of the University Council.

2. *Attendance:*

HERMAN W. REYNOLDS, Engineering, Chairman.<sup>a</sup>  
 EMMA S. YULE, Agriculture.  
 NICOLAS ZAFRA, Liberal Arts.  
 RAMONA S. TIRONA, Education.  
 VICENTE G. SINCO, Law.  
 MARIANO V. DEL ROSARIO, Medicine.  
 ARTHUR F. FISCHER, Forestry.  
 MANUEL D. SUMULONG, Veterinary Science.

3. *Board of Athletic Control:*

H. LAWRENCE NOBLE, Law, President.  
 B. M. GONZALEZ, Agriculture.  
 CRISTINO JAMIAS, Liberal Arts.  
 ISIDORO PANLASIGUI, Education.  
 MARIANO F. MANGUERRA, Engineering.  
 FELIX HOCSOM, Medicine.  
 GREGORIO SAN AGUSTIN, Veterinary Science.

## STANDING COMMITTEES OF THE UNIVERSITY COUNCIL—Ctd.

3. *Board of Athletic Control*—Continued.

REGINO R. YLANAN, Physical Education.  
JOHN McBRIDE, Military Science.  
LUIS R. SALVOSA, Forestry.

4. *Catalogue and Other Publications*:

C. V. WICKER, Liberal Arts, Chairman.  
NEMESIO MENDIOLA, Agriculture.  
L. S. OSBORN, Education.  
RAMON MARIANO, Engineering.  
MELQUIADES J. GAMBOA, Law.  
ANTONIO G. SISON, Medicine.  
ANGEL K. GOMEZ, Veterinary Science.  
FELIX HOCSON, Pharmacy.

5. *Entrance and Relations to other Institutions*:

LEANDRO H. FERNANDEZ, Liberal Arts, Chairman.<sup>a 1</sup>  
TORIBIO VIBAR, Agriculture.  
AGUSTIN S. ALONZO, Education.  
HERMENEGILDO B. REYES, Engineering.  
JOSE A. ESPIRITU, Law.  
JUAN C. NAÑAGAS, Medicine.  
MARCOS TUBANGUI, Veterinary Science.

6. *Graduate Studies*:

MAXIMO M. KALAW, Liberal Arts, Chairman.  
MANUEL L. ROXAS, Agriculture.  
L. B. UICHANCO, Agriculture.  
JOSE K. SANTOS, Liberal Arts.  
ENCARNACION ALZONA, Liberal Arts.  
AGUSTIN S. ALONZO, Education.

7. *Honorary Degrees*:

JOSE ALBERT, Medicine, Chairman.  
MAXIMO M. KALAW, Liberal Arts.  
CHARLES F. BAKER, Agriculture.  
FRANCISCO BENITEZ, Education.  
HERMAN W. REYNOLDS, Engineering.<sup>a</sup>  
JORGE BOCOBO, Law.  
GREGORIO SAN AGUSTIN, Veterinary Science.

8. *Military Science and Tactics*:

JOHN McBRIDE, Military Science, Chairman.  
L. B. UICHANCO, Agriculture.  
JOSE S. REYES, Liberal Arts.  
ISIDORO, PANLASIGUI, Education.  
FELIPE R. ROMAN, Engineering.  
H. LAWRENCE NOBLE, Law.  
DOMICIANO J. SANDOVAL, Medicine.  
MANUEL D. SUMULONG, Veterinary Science.  
LUIS R. SALVOSA, Forestry.

<sup>a</sup> On leave.

<sup>a 1</sup> Dr. Encarnacion Alzona will temporarily assume the Chairmanship in the absence of Professor Leandro Fernandez.

## STANDING COMMITTEES OF THE UNIVERSITY COUNCIL—Ctd.

## 9. Schedule Committee:

JOSE P. APOSTOL, Liberal Arts, Chairman.  
LOIS S. OSBORN, Education.  
JUSTO ARRASTIA, Engineering.  
MELQUIADES J. GAMBOA, Law.  
DANIEL DE LA PAZ, Medicine.  
MARIANO V. DEL ROSARIO, Pharmacy.  
ELADIO R. ALDECOA, Dentistry.  
MARCOS TUBANGUI, Veterinary Science.

## 10. Student Organization and Activities:

VIDAL A. TAN, Liberal Arts, Chairman.  
B. M. GONZALES, Agriculture.  
JOSE K. SANTOS, Liberal Arts.  
RAMONA S. TIRONA, Education.  
JOSE A. ESPIRITU, Law.  
SIXTO DE LOS ANGELES, Medicine.  
ANGEL K. GOMEZ, Veterinary Science.  
ALEXANDER LIPPAY, Music.  
RAFAEL ENRIQUEZ, Fine Arts.  
REGINO R. YLANAN, Physical Director.  
JOHN McBRIDE, Military Science.  
HERMENEGILDO B. REYES, Engineering.  
Dean of Men and Dean of Women, ex-officio members.

## 11. Students' Progress:

CHARLES F. BAKER, Agriculture, Chairman.  
JOSE S. REYES, Liberal Arts.<sup>a</sup>  
ISIDORO PANLASIGUI, Education.  
L. S. EATON, Engineering.  
VICENTE G. SINCO, Law.  
MARIA PAZ MENDOZA-GUAZON, Medicine.  
MARCOS TUBANGUI, Veterinary Science.  
Dean of Men and Dean of Women, ex-officio members.

## 12. Students' Publications:

CARLOS P. ROMULO, Liberal Arts, Chairman.  
NEMESIO B. MENDIOLA, Agriculture.  
MARIA VALDEZ-VENTURA, Education.  
TEOFILO REYES, Engineering.  
EUSEBIO F. RAMOS, Law.  
CARMELO REYES, Medicine.  
LUIS R. SALVOSA, Forestry.  
MARCOS TUBANGUI, Veterinary Science.  
Dean of Men and Dean of Women, ex-officio members.

## 13. University Curriculum:

H. S. TOWNSEND, Liberal Arts, Chairman.  
MARCIANO C. LOPEZ, Agriculture.  
AMANDO CLEMENTE, Liberal Arts.  
JOSE A. ESPIRITU, Law.

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<sup>a</sup> On leave.

**STANDING COMMITTEES OF THE UNIVERSITY COUNCIL—Ctd.****13. University Curriculum—Continued.**

ISABELO CONCEPCION, Medicine.  
HAROLD CUZNER, Forestry.  
E. R. HYDE, Engineering.  
MANUEL D. SUMULONG, Veterinary Science.  
LOIS S. OSBORN, Education.

**14. Academic Costume and Ceremonies:**

G. A. BERNARDO, Liberal Arts, Chairman.  
H. LAWRENCE NOBLE, Law.  
EMMA S. CONGER, Education.  
JUAN C. NANAGAS, Medicine.  
● ANGEL K. GOMEZ, Veterinary Science.  
L. S. EATON, Engineering.  
EMMA S. YULE, Agriculture.

# The Faculty of Instruction

[Words in parentheses indicate College or School to which instructor belongs]

## PRESIDENT

**RAFAEL PALMA, B.A., LL.B., LL.D.,**

## PROFESSORS

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# **Government and History of the University**

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## **THE UNIVERSITY CHARTER**

**AN ACT FOR THE PURPOSE OF FOUNDING A UNIVERSITY FOR THE PHILIPPINE ISLANDS, GIVING IT CORPORATE EXISTENCE, PROVIDING FOR A BOARD OF REGENTS, DEFINING THE BOARD'S RESPONSIBILITIES AND DUTIES, PROVIDING HIGHER AND PROFESSIONAL INSTRUCTION, AND FOR OTHER PURPOSES.**  
(ACT No. 1870, AMENDED BY ACT No. 2024, ENACTED JANUARY 30, 1911, ACT No. 2483, ENACTED FEBRUARY 5, 1915, ACT No. 2759, ENACTED FEBRUARY 28, 1918, AND ACT No. 3197, ENACTED DECEMBER 2, 1924.)

*By authority of the United States, be it enacted by the Philippine Legislature that:*

**SECTION 1.** The Governor-General is hereby authorized, within the powers and limitations hereinafter specified, to establish in the City of Manila, or at the point he may deem most convenient, a university which shall be known by the designation of "University of the Philippines," the same being organized as a corporation under that name.

### **PURPOSE OF THE UNIVERSITY**

**SEC. 2.** The purpose of said University shall be to provide advanced instruction in literature, philosophy, the sciences, and arts, and to give professional and technical training.

**SEC. 3.** No student shall be denied admission to the University by reason of age, sex, nationality, religious belief, or political affiliation.

### **BOARD OF REGENTS: (a) ITS COMPOSITION**

**SEC. 4.** The government of said University is hereby vested in a board of regents to be known as the "Board of Regents of the University of the Philippines." The Board of Regents shall be comprised of the Secretary of Public Instruction, who shall be ex-officio chairman of the board; the chairman of the Committee on Public Instruction of the Senate; the chairman of the Committee on Public Instruction of the House of Representatives; the President of the University; the Director of Education; one member of the University Council of the University of the Philippines elected by said Council; two alumni of the University of the Philippines, elected by the alumni of the University under such rules and regulations as may be promulgated by the Board of Regents; and three additional members to be appointed by the Governor-General, by and with the consent of the Philippine Senate. The President of the University shall be elected and his compensation shall be fixed by the Board of Regents. The member elected by the University Council and the members elected by the alumni of the University shall hold office for a term of three years or until their

## THE UNIVERSITY

successors are elected or appointed. Beginning with October sixteen, nineteen hundred and nineteen, the members of the Board of Regents appointed by the Governor-General shall hold office for a term of three years: *Provided, however,* That the regents first appointed after said date shall hold office as follows: One for one year, one for two years, and one for three years, the term of office of each to be specified in his appointment by the Governor-General. In case of vacancy among the members of the Board of Regents appointed by the Governor-General, such vacancy shall be filled by appointment by the Governor-General by and with the advice and consent of the Philippine Senate, and such appointee shall hold office for the unexpired term. All members of the Board of Regents shall be citizens of the Philippine Islands or of the United States, and shall be residents of the Philippine Islands. No person in the employ of the University in any capacity whatsoever, whether as dean, professor, instructor, lecturer, or otherwise, shall be eligible to membership on the Board, whether by appointment by the Governor-General or by election of the alumni, with the exception of the regent elected by the University Council; *Provided, further,* That any person now holding office as member of the Board of Regents at the time of the approval of this Act who is or may be a member of the faculty of the University of the Philippines or in the employ of the same, except the member elected by the University Council, shall continue to hold office until the expiration of his term.

Members shall serve without compensation other than actual and necessary expenses incurred either in attendance upon meetings of the Board or upon other official business authorized by resolution of the Board.

SEC. 5. The University of the Philippines shall have the general powers set out in section thirteen of Act Numbered Fourteen hundred and fifty-nine, and the administration of said University and the exercise of its corporate powers are hereby vested exclusively in the Board of Regents and the President of the University in so far as authorized by said Board.

(b) ITS POWERS

SEC. 6. The Board of Regents shall have the following powers and duties, in addition to its general powers of administration and the exercise of the powers of the corporation:

(a) To receive and appropriate to the ends specified by law such sums as may be provided by law for the support of the University;

(b) To provide for the establishment of one or more Colleges of Liberal Arts; a College of Law; a College of Social and Political Science; a College of Medicine and Surgery; a College of Pharmacy; a College of Dentistry; a College of Veterinary Science; a College of Engineering; a College of Mines; a College of Agriculture; a College of Education; a School of Fine Arts; a School of Forestry; a Conservatory of Music, and such other colleges and schools as the Board of Regents may deem necessary: *Provided,* That the Board of Regents may establish these colleges, or any of them, in Manila or in any other place in the Archipelago, as soon as in its judgment conditions shall favor their opening and funds shall be available for their maintenance: *And provided, further,* That the Board of Regents shall have power to combine two or more of the colleges authorized by this Act, in the interest of economy and efficiency: *And provided, finally,* That the Philippine Medical School, as established by Act

Numbered Fourteen hundred and fifteen, as amended, shall become the College of Medicine and Surgery of the Philippine University as soon as two or more colleges of the University of the Philippines shall have been established and in actual operation;

(c) To confer the usual honorary degrees upon persons other than graduates of the University in recognition of learning, statesmanship, or eminence in literature, science, or art: *Provided*, That such degrees shall not be conferred in consideration of the payment of money or other valuable consideration;

(d) To establish chairs in the colleges hereinbefore mentioned, and to provide for the maintenance or endowment of such chairs, as well as to provide for such other professors, assistant professors, instructors, tutors, and lecturers as the progress of instruction may make necessary, and to fix the compensation pertaining to such positions;

(e) To appoint, on the recommendation of the President of the University, professors, instructors, lecturers, and other employees of the University, to fix compensation, hours of service, and such other duties and conditions as it may deem proper, to apply to them in its discretion the Leave Law, any other provision of law to the contrary notwithstanding, and to remove them for cause after an investigation and hearing shall have been had;

(f) To approve the course of study and rules of discipline drawn up by the University Council as hereinafter provided; to fix the tuition fees required of students, as well as matriculation fees, graduation fees and fees for laboratory courses, and all special fees; and to remit the same in special cases;

(g) To provide fellowships and scholarships and to award the same to students giving special evidence of merit;

(h) To prescribe rules for its own government, and to enact for the government of the University such general ordinances and regulations, not contrary to law, as are consistent with the purposes of the University as defined in section two of this Act.

(i) To receive, in trust, bequests, gifts, and donations of real and personal property, of whatever kind, and to administer the same for the benefit of the University, or any department thereof, or for the assistance of any student or students thereof, in accordance with the request or direction of the donor and, in the absence thereof, as may be determined by the Board of Regents in its discretion.

#### QUORUM

SEC. 7. A quorum of the Board of Regents shall consist of a majority of all the members holding office at the time the meeting of the Board is called. All process against the Board of Regents shall be served on the president or secretary thereof.

SEC. 8. On or before the tenth day of August of each year, the Board of Regents shall file with the Governor-General a detailed report, setting forth the progress, conditions, and needs of the University.

#### THE UNIVERSITY COUNCIL

SEC. 9. There shall be a university council, consisting of the President of the University and of all instructors in the University holding the rank of professor, associate professor, or assistant professor. The Council shall

## THE UNIVERSITY

have power to prescribe the courses of study and rules of discipline, subject to the approval of the Board of Regents. It shall fix the requirements for admission to any college of the University, as well as for graduation and the receiving of a degree. The Council alone shall have the power to recommend students or others to be recipients of degrees. Through its president or committees it shall have disciplinary power over the students within the limits prescribed by the rules of discipline approved by the Board of Regents. The powers and duties of the President of the University, in addition to those specifically provided for in this Act, shall be those usually pertaining to the office of the president of a university.

## THE FACULTIES

SEC. 10. The body of instructors of each college shall constitute its faculty, and as presiding officer of each faculty there shall be a dean elected from the members of such faculty by the Board of Regents on nomination by the President of the University. In the appointment of professors or other instructors of the University, no religious test shall be applied, nor shall the religious opinions or affiliations of the instructors of the University be made a matter of examination or inquiry: *Provided, however,* That no instructor in the University shall inculcate sectarian tenets in any of the teachings, nor attempt, either directly or indirectly, under the penalty of dismissal by the Board of Regents, to influence students or attendants at the University for or against any particular church or religious sect.

SEC. 11. Professors and other regular instructors in the University shall be exempt as such from any civil service examination or regulation as a requisite to appointment.

## THE SECRETARY

SEC. 12. There shall be a Secretary of the University, appointed by the Board of Regents. He shall be the secretary of such Board and also of the University, and shall keep such records of the University as may be designated by the Board.

## THE TREASURER

SEC. 13. The Treasurer of the Philippine Islands shall be ex-officio Treasurer of the University, and all accounts and expenses thereof shall be audited by the Insular Auditor, and all disbursements shall be made in accordance with the rules and regulations prescribed by him.

## RELATIONS WITH OTHER GOVERNMENT BRANCHES

SEC. 14. Heads of Bureaus and offices of the Insular Government are hereby authorized to loan or transfer, upon request of the President of the University, such apparatus or supplies as may be needed by the University and to detail employees for duty therein, when in the judgment of the head of the Bureau or Office such supplies or employees can be spared without serious detriment to the public service. Employees so detailed shall perform such duty as is required under such detail, and the time so employed shall count as part of their regular official service.

## BOARD OF VISITORS

SEC. 15. The Governor-General, the President of the Senate, and the Speaker of the House of Representatives shall constitute a board of visitors

of the University, whose duty it shall be to attend the commencement exercises of the University, and to make visits at such other times as they may deem proper, to examine the property, course of study, discipline, the state of finances of the University, to inspect all books and accounts of the institution, and to make report to the Philippine Legislature upon the same, with such recommendation as they favor.

SEC. 16. The sum of one hundred thousand pesos is hereby appropriated, out of any funds in the Insular Treasury not otherwise appropriated, to be expended in the discretion of the Board of Regents for the establishment of a college or colleges authorized by this Act, the establishment of which may be considered most urgent.

SEC. 17. This Act shall take effect on its passage.

Enacted, June 18, 1908.

# RULES GOVERNING THE ELECTION OF THE COUNCIL AND ALUMNI REPRESENTATIVES TO THE BOARD OF REGENTS

## THE REPRESENTATIVE OF THE UNIVERSITY COUNCIL

1. *Election at meeting of Council; call for meeting.*—Election of a member of the Board of Regents of the University Council shall take place on the day the council meets to approve candidates for graduation, beginning this year (1918) and upon the same day every three years thereafter.
2. *Voters.*—Only members of the University Council are entitled to vote at this election.
3. *Eligibility.*—Only members of the University Council shall be eligible for the office of the regent chosen at this election.
4. *Secret ballot.*—Election shall be by secret ballot.
5. *What constitutes choice.*—A majority of the votes cast shall constitute a choice, provided there is a quorum present.
6. *Vote by proxy.*—No vote by proxy shall be received.
7. *Certificate of election.*—The secretary of the University Council shall forthwith certify to the result of the election and forward the certificate to the Board of Regents.
8. *When regent-elect qualifies.*—The regent-elect shall qualify at the meeting of the Board immediately following his election.

## REPRESENTATIVES OF THE ALUMNI OF THE UNIVERSITY OF THE PHILIPPINES

SEC. 1. *Qualification of voters.*—Every person, regardless of sex and age, holding any degree, or the title of Associate in Arts, or the High School Teachers Certificate granted by the University of the Philippines shall be entitled to vote.

SEC. 2. *Manner of election.*—The president of the University shall fix a period within which nominations may be received at the office of the secretary of the University.

Every nomination shall be signed by at least twenty-five alumni who are qualified to vote. No alumnus shall sign more than one nomination.

Election shall be by ballot, signed by the alumnus voting and sent to the office of the secretary. The president shall appoint a faculty committee on elections, of which the secretary of the University shall be a member, and whose duty it shall be to prepare the official ballot, to see to it that the election is legally carried out, to count the votes cast, and to report the result of the election to the President of the University. Upon receipt of the committee's report, the president shall present the same to the Board of Regents.

SEC. 3. *What constitutes a choice.*—The candidate receiving the highest number of votes shall be declared elected.

In case of tie, the tied candidates or their representatives shall draw lots in the presence of the faculty committee on elections, and the successful candidate shall be declared elected.

SEC. 4. *Election contests.*—In case of election contest, the same shall be decided by the President of the University, after both parties have been given an opportunity to be heard.

## HISTORICAL SKETCH

Pursuant to the passage of the foregoing Act by the First Philippine Legislature, the work of establishing the colleges thus provided was begun during the latter part of the year 1908.

The Philippine Medical School established by a special Act on December 1, 1905, and opened to students for the purpose of instruction on June 10, 1907, became the College of Medicine and Surgery of the University on December 8, 1910. On March 1, 1923, its name was changed to College of Medicine.

The School of Fine Arts was temporarily established in a house rented for that purpose at 931 Calle R. Hidalgo, Quiapo, in the City of Manila, and was opened to students in June, 1909.

A location for the College of Agriculture was obtained by the transfer to the Board of Regents of certain lands near Los Baños, in the Province of Laguna, which had already been secured by the Bureau of Education for an Agricultural School. A temporary building was erected on this property, and school work began therein June, 1909.

The establishment of the Experimental Station annexed to the College of Agriculture was authorized by the Legislature under Act No. 2730, enacted February 15, 1918.

The buildings for a College of Veterinary Science were erected first on land adjoining the animal quarantine station at Pandacan, Manila. The first class was received in June, 1910. In November, 1912, the Veterinary Clinic and Hospital were opened on the grounds adjoining San Lazaro Hospital. At present, the college is located in Los Baños, Laguna.

The College of Liberal Arts and the College of Engineering were established June 3, 1910, and their classes opened the same month. The College of Liberal Arts had previously existed as a Government school in the Bureau of Education, known by the name of the Junior College of Liberal Arts.

A course in pharmacy was instituted under the administrative control of the College of Liberal Arts, June 5, 1911. Beginning with the academic year 1914-15 this course, by action of the Board of Regents on February 12, 1914, was transferred to the College of Medicine under the direction of the School of Pharmacy.

The Board of Regents at its meeting of May 3, 1918, authorized the establishment of a Junior College of Liberal Arts in the City of Cebu and its classes were opened formally to students on July 1, 1918. On July 1, 1922, the Junior College of Liberal Arts, by action of the Board of Regents, became the Junior College of the University.

The construction of Rizal Hall was authorized by the Legislature under Act No. 2736, enacted February 15, 1918.

The School of Education, a department of the College of Liberal Arts authorized by the Board of Regents at its meeting of December 8, 1913,

## THE UNIVERSITY

became, by a resolution of said board, the College of Education on July 1, 1918.

The College of Law was established on January 12, 1911.

On February 4, 1916, the Philippine Legislature by Act No. 2578 founded the School of Forestry at Los Baños.

Previous to this time the Ranger's Course in Forestry was given in the College of Agriculture.

On February 8, 1915, the Board of Regents authorized the institution of a course in dentistry to be given in the College of Medicine.

The Conservatory of Music was authorized by Act No. 2623, and classes were opened on September 4, 1916 at No. 963 Calle R. Hidalgo in a building rented for that purpose. In June, 1925, the Conservatory moved to a new building located at the corner of Isaac Peral and Nebraska, Ermita.

The creation of a branch of the College of Liberal Arts of the University of the Philippines, in the municipality of Vigan, Ilocos Sur, for the provinces of Northern Luzon, was authorized by Act No. 2956 of the Philippine Legislature, and approved on February 19, 1921, but, because of limited appropriations, this branch has not as yet been instituted.

All the colleges and schools of the University are situated in Manila, except the Colleges of Agriculture and Veterinary Science and the School of Forestry which are located at Los Baños, Laguna, and the Junior College of the University at Cebu.

## A. UNDERGRADUATE COURSES

### 1. GENERAL PROVISIONS

Applications for admission are received from four classes of candidates: (a) Persons who desire to begin, in some college of the University, a regular course of study leading to a degree conferred in that college; (b) students who, having already attended some institution of collegiate rank, desire advanced standing in a regular course in some college of the University; (c) special students, not candidates for any degree; (d) graduate students. The conditions of admission for these four classes of persons are described below.

Every applicant for admission to the University, in case he has previously attended some other college or university without graduating, must file with the registrar of the University a certificate of his honorable dismissal from that institution.

As evidence that they have satisfactorily pursued the subjects required for admission, candidates may take the entrance examinations given by the University, or may present certificates accepted by the University as equivalent for all or any part of their subjects.

All diplomas, certificates, and statements offered in lieu of university entrance examinations should be sent by mail to the registrar of the University, as early as possible, or at least two weeks before registration.

For privileges extended to candidates presenting on admission more than the required amount of entrance subjects, see page 51 "Admission to Advanced Standing."

### 2. ENTRANCE REQUIREMENTS

The requirements for entrance vary for the different colleges of the University. (See provisions in respective Catalogues.)

By action of the University Council those colleges and schools of the University that require high school graduation for admission are empowered to select the students to be admitted whenever the number of applicants is greater than the present personnel and facilities of the schools and colleges can accommodate, and are authorized to give in addition to the present entrance requirements, tests in English, in intelligence, mathematics and physics.

### 3. METHODS OF ADMISSION

Students will be admitted to the University:

(a) By certificate from a secondary school in the accredited list of the University.

*Admission from an Accredited School.*—The University Council Committee on Entrance and Relations to Other Institutions or its duly authorized representatives shall visit and inspect, with the permission of the Secretary of Public Instruction, high schools and preparatory schools, both public and private, as often as the committee deems necessary and, on the

## THE UNIVERSITY

basis of the findings of this committee or its representatives, the University will give credit to all work which is found to be sufficiently well done. Students presenting a certificate from any of these schools in the accredited list of the University shall be given entrance credits in all those subjects for which the school is especially accredited as shown in the certificate issued to the school by the University.

Written application for admission to the University accompanied by an official certificate from the accredited school showing the character and extent of the applicant's preparatory work as well as certificate of honorable dismissal from the school last attended should be presented to the registrar of the university at least two weeks before the beginning of the semester.

(b) By examination.

*Admission by Examination.*—(1) Examinations in all subjects required for admission to any of the colleges of the University located in Manila will be held at University Hall, Ermita, Manila, about the middle of May of every year; to the colleges at Los Baños, after May 1.

Permission to take these examinations must be secured from the dean of the college concerned at least two weeks before the date of examination. Permits will be sent by mail upon application.

No examination of candidates for admission will be held by the University at any other time or place.

A schedule of the University entrance examinations may be obtained from the dean of the college concerned.

The entrance examinations are ranked and reported in five grades, corresponding to the five grades used for University courses (See Grades of Scholarship, page 52.) In case a candidate for admission obtains a grade of 4 or 5 in any of the entrance examinations, such grades can be removed only at the next scheduled entrance examination.

(2) The subject matter of the entrance examinations is as follows:

### **SUBJECT MATTER OF THE ENTRANCE EXAMINATIONS**

#### **ENGLISH**

(5 units)

The examination will consist of two parts:

1. *English Rhetoric and Composition, 3 units.*—The writing of compositions on assigned subjects to test the candidates' training in written expression. The examiner will consider particularly the following essentials: Spelling, punctuation, and use of capital letters; corrections of faulty syntax; idiomatic use of words; structure of sentences and paragraphs. The examinations will be based on the course of study as outlined by accredited schools in the Philippines.

2. *English Literature, 2 units.*—(a) Silas Marner and one of the plays of Shakespeare. The play selected for the entrance examination for 1917 was *As You Like It*. (b) The Lady of the Lake, Sohrab and Rustum, Ode to Duty, Gettysburg Address, Macaulay's Essay on Johnson.

#### **HISTORY**

(3 units)

(a) *General History, 1½ units.*—The essential features of Greek and Roman history; the outlines of ancient Oriental history; early Mediæval

history to the death of Charlemagne; the rise and fall of the Holy Roman Empire; feudalism; the difference between Mediæval and Modern history; the elements of Modern history to the end of the seventeenth century.

Textbook: Myer's General History.

(b) *United States History*,  $\frac{1}{2}$  unit.—From the European discovery of the New World, with special attention to the development of the British Empire in America during the seventeenth and eighteenth centuries. After the Revolution, only the history and civil government of the United States need to be studied. Textbook recommended: Thomas' United States History.

(c) *Colonial History*,  $\frac{1}{2}$  unit.—A concise summary of the history of colonization in ancient and modern times; the colonial possessions of great modern colonizing nations; the various forms of colonial government. Textbook: Yule's Colonial History.

(d) *Government*,  $\frac{1}{2}$  unit.—American government from colonial times to the present. Textbook: Ashley's American Government. Reference: Woodrow Wilson's The State.

#### MATHEMATICS

(4 units)

*Elementary Algebra*,  $1\frac{1}{2}$  units (required).—A thorough knowledge of the four fundamental operations with rational expressions; factoring, including the determination of the highest common factor and the solution of equations; common multiples; fractions; the binomial theorem for positive integral exponents (without proof); theory of exponents; radicals, including the extraction of the square root of polynomials and of numbers; the solution of equations of the first degree (numerical and literal, integral, and fractional) involving one or more unknown numbers; quadratic equations, solved both by factoring and by completing the square; and simple cases of simultaneous equations, one of which is quadratic. Textbook recommended: Milne's High School Algebra.

*Plane Geometry*, 1 unit (required).—The usual theorems and constructions contained in the best textbooks on this subject, including the general properties of plane rectilinear figures, the circle and the measurement of angles, similar polygons, areas, regular polygons, and the measurement of the circle; the solution of original exercises, including loci problems, and the mensuration of lines and plane surfaces. Textbook recommended: Wentworth-Smith's Plane Geometry, second edition.

*Solid Geometry*,  $\frac{1}{2}$  unit.—The usual theorems and constructions contained in the best textbooks on this subject, including the relation of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle; the solution of original exercises, including loci problems; and the mensuration of surfaces and solids. Textbook recommended: Wentworth's Solid Geometry.

*Plane Trigonometry*,  $\frac{1}{2}$  unit.—The definitions and relations of the six trigonometric functions as ratios; circular measurement of angles; proofs of the principal formulas, especially those for the sine, cosine, and tangent, of the sum or difference of any two angles, and of double angles and half angles; the product expressions for the sum of two sines or of two cosines; the transformation of trigonometric expressions by means of these formulas, the use of inverse functions, and the solution of right and oblique tri-

angles, together with simple applications. Textbook recommended: Wentworth's Plane Trigonometry.

*Review of Arithmetic, ½ unit.*

ECONOMICS

(1 unit)

Elements of Economics, and a study of economic conditions in the Philippines, five periods a week throughout the year. Textbooks: Bullock's Elements of Economics, Miller's Economic Conditions of the Philippines.

LATIN

(4 units)

1. *Latin Grammar and Composition, 1 unit.*—The inflections; the simpler rules for composition and derivation of words, syntax of cases and the verb; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive.

2. *Cæsar and Composition, 1 unit.*—Any four books of the Gallic War (to be read with Greenough, D'Ooge, and Daniel's Second Year Latin).

3. *Cicero, 1 unit.*—Six orations. The four against Cataline, for Archias, and one other.

4. *Virgil, 1 unit.*—Six books of the Aeneid.

SPANISH

(2 units)

1. *Spanish Grammar and Composition, 1 unit.*—The rudiments of grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives and pronouns, and the elementary rules of syntax; mastery of all but the rare irregular verb forms and of the simpler uses of the modes and tenses; exercises containing illustrations of the principles of grammar; practice in translating Spanish into English, and English variations of text into Spanish.

2a. *Elementary Spanish Literature, ½ unit.*—The reading and accurate rendering into good English of from 200 to 250 pages of graduated texts, with translation into Spanish of easy variations of the sentences read.

2b. *Advanced Spanish Literature, ½ unit.*—The reading, in addition to the elementary work, of from 400 to 500 pages of modern prose from different authors (a total, with the elementary requirement, of 600 to 750 pages).

PHYSICAL GEOGRAPHY

(1 unit)

The study of physiography or physical geography should occupy five periods a week for one-half year. In order to attain the best results, a considerable portion of the time should be spent in making observations and sketches in the field. Special attention should be given to the action of atmospheric agents upon the earth and to local meteorology.

The examination is intended to test the student's knowledge of the various agencies and forces which affect the surface of the earth, rather than to emphasize a mass of more or less isolated facts. Textbook: Davis' Physical Geography.

PHYSICS

(1 unit)

Students offering physics for entrance credit are required to submit to the department a laboratory notebook properly certified by their instructor

in physics or by the principal of the school. This notebook should contain at least thirty distinctly different quantitative experiments which have been accepted by the instructor in charge of the preparatory work. Nine of these experiments should be in mechanics, five in heat and molecular physics, five in light, two in sound, two in magnetism, and seven in electricity.

As preparation for the granting of entrance credit in the manner above outlined the student should take a year's work in a recognized preparatory school, using recognized textbooks (for example—Millikan and Gale, First Course in Physics; Millikan, Gale, Bishop, Laboratory Manual), and should have completed satisfactorily a year's course in a physics laboratory. This year's work, combining classroom and laboratory, should cover the common branches of physics.

#### ZOOLOGY

(1 unit)

Elementary zoölogy should be a study of the natural history, external characters, and relationship of animals, not a course in anatomy. Students ought to make a collection of at least 200 species of insects, representing not less than 12 orders, and of 100 species belonging to other classes than insects. The student should classify his collection as far as the orders. It should be borne in mind that no textbook exists which is adapted to Philippine zoölogy, and therefore the adopted text must be a guide to work and should not be slavishly followed. The collection should serve as a basis for observations on habits, environment, and adaptations, and also furnish part of the material needed for detailed laboratory study. The course should occupy five double periods a week for one year, divided as follows:

*Invertebrate Zoölogy (28 weeks).*—Three laboratory periods a week should be devoted to the observation of living and preserved forms, and to a limited amount of dissection.

This laboratory practice should at least include a study of all of the following: Amœba, vorticella, paramœcium, anglena, sponge, sea anemone, jellyfish, coral, liver-fluke, tapeworm, ascaris, hookworm, lingula, starfish, brittle-star, sea-urchin, sea cucumber, earthworm, leech, prawn, crab, hermit-crab, barnacle, cyclops, locust, cockroach, mantis, dragonfly, electric-light bug or squash bug, scale, cicada, fly, mosquito, butterfly, coconut beetle, wasp, ant, termite, scorpion, spider, tick, centipede, clam or mussel, snail or slug, squid.

*Vertebrate Zoölogy (12 weeks).*—A study of the external characters, classification, geographical distribution, and natural history of fish, amphibia, reptiles, birds, and mammals, with special consideration of Philippine forms. Dissection should be limited to one form, either a fish, lizard, or rat. Text recommended: Linville and Kelly's Elementary Zoölogy.

#### BOTANY

(1 unit)

Students offering botany for an entrance subject should have devoted at least five periods a week for one year to a course equivalent to that outlined by Copeland in Bulletin No. 24 of the Bureau of Education. Of this time two or more periods each week should be double periods given to laboratory or field work.

In the laboratory and field work careful notes and drawings should be made. These should be made directly from plants. In the preparation of

**THE UNIVERSITY**

an herbarium of fifty species or more, the student should distinguish clearly between notes obtained in the field and from the plants, and information from lectures and books.

**GENERAL BIOLOGY**

(1 unit)

Students offering general biology for an entrance subject should have devoted at least five double periods a week for one year to the course. Of this time at least three periods each week should be double periods given to laboratory or field work. Laboratory work should be done upon plant and animal specimens and a notebook should be carefully kept of all laboratory work. Textbook: Hunter's Essentials of Biology.

(c) By transfer from another college or university of recognized standing.

*Admission by transfer from other colleges or universities.*—A person who has been admitted to another college or university of recognized standing will be admitted to this University upon presenting a certificate of honorable dismissal and proper credentials from the institutions from which he comes.

**4. LABORATORY NOTEBOOKS**

Candidates for admission to any college or school of the University are required to present to the Registrar of the University their laboratory notebooks in physics for approval. These notebooks should be presented together with other secondary school credentials at least two weeks before registration. Upon the cover of every notebook there must be attached a statement, signed by the teacher, similar in form to the following:

I hereby certify that the accompanying notebook is the original record of the experiments performed by ..... in the ..... laboratory of the ..... School, during the school period from ..... , 19....., to ..... , 19.....

All notebooks will be returned to the candidate upon application at any time within one year after registration. Notebooks not called for after this period will be burned.

**5. ENTRANCE DEFICIENCY**

Students deficient in any of the subjects required for admission who may, in spite of such deficiencies, be admitted to any college by the faculty concerned, *must make up all deficiencies within one year.*

**6. ADMISSION OF SPECIAL STUDENTS**

Persons over 20 years of age may, under certain circumstances, even without satisfying the entrance requirements, be admitted as special students not candidates for degrees. The applicants must give evidence of ability to do creditable work and their applications for admission must be approved by the departments concerned and the Dean of the College in which the application is filed.

Special students shall not be permitted to enroll for more than two years except by permission of the Dean concerned.

Special students who are admitted without satisfying the entrance requirements but who subsequently satisfy such requirements may attain

the standing of regular students. College subjects taken in the University proper shall not be used to satisfy the entrance requirements.

Special students are subject to the fees and regulations prescribed for regular students and must take *not more than nine credit hours* per week of classroom or laboratory work. Special students taking any of the oriental languages may take less than nine credit hours of work per week.

#### 7. FOREIGN STUDENTS

Candidates for admission who come from foreign countries should bring complete official credentials. Upon arriving at the University, foreign students should obtain all necessary information from the dean of the college they desire to enter.

#### 8. ADMISSION TO ADVANCED STANDING

When a student matriculates in any college, he shall be given advanced credits for any specific course offered in the curriculum of that college upon presentation of satisfactory evidence to the Head of the Department under which the course is given showing that he has previously completed the full equivalent of the course, but only after passing such an examination as may be satisfactory to the head of the department concerned.

When a student shall present evidence that he has pursued any subject for a sufficient time and that he has accomplished a definite progress in that subject equivalent to a certain number of units of University credit but the work pursued is not the equivalent of any particular course offered in the University, the head of the department under which this subject is given may award to the student, after passing an examination satisfactory to the head of the department concerned, advanced credits in the form of general credits in the subject pursued.

Application for advanced credits shall be made to the Dean of the College where the credits are sought not later than June fifteenth following matriculation. The Dean shall forward the application to the Head of the Department where the courses for which credits are sought are given. The Head of the Department shall return the application together with his recommendations to the Dean's office not later than August first of the same year unless the Faculty, on petition of the student, decide to extend this time; *Provided*, That the Head of the Department shall state whether the credits allowed are general or specific; and in case specific credits are awarded, the particular subjects for which such credits are given should be named.

#### 9. DEPARTMENTS OF ADMINISTRATION AND INSTRUCTION

For purposes of administration, the University is divided into colleges and schools. Each college constitutes an independent administrative unit empowered to offer courses of instruction and grant degrees, certificates, or titles. Another administrative unit is the school which is also empowered to offer courses of instruction and grant degrees, certificates, or titles under the immediate direction of the director of the school but subject to the control of the dean of the college to which it is attached.

For purposes of instruction, the colleges and schools of the University are divided into departments, each of which functions as an independent

unit of instruction under the Head of the Department or, in case of a department without a duly appointed head, under the dean of the college to which the department belongs.

#### 10. REGISTRATION OF STUDENTS

Students in all undergraduate courses must register for work in each college at the time prescribed by their college. To promote prompt registration, a fee of ₦5 is charged those who seek to register later than the specified date of registration unless previously excused by the president of the University. Changes in registration will not be allowed except by special permission of the faculty concerned, in which case any registration will be subject to a fee of ₦5.

No person will be admitted as a student to the exercises of any instructor except as authorized by the official certificate of registration furnished to each student by the dean or registrar.

#### 11. CREDITS

One university unit of credit is one hour lecture or recitation each week for the period of a complete semester.

In all courses, two and a half to three hours of laboratory work, and, in the technical courses, three hours of drafting or shop work, are regarded as the equivalent of one recitation or lecture.

No student registered in any of the colleges and schools of the University shall be allowed to take more than twenty-one non-laboratory units or twenty-four units including laboratory work during each semester, or nine non-laboratory units during each summer; three of these units to be devoted each semester of the first two years to the course in military science and tactics: *Provided, however,* That this rule shall not affect or alter any existing course duly approved by the University Council and the Board of Regents in which more than twenty-one units are required.

#### 12. GRADES OF SCHOLARSHIP

Every student is required to attend all his class exercises and to satisfy the instructor in each of his courses of study, in such way as the instructor may determine, that he is performing the work of the course in a satisfactory manner.

The results of examinations, together with class work, will be ranked and reported in five grades—1, 2, 3, 4, 5. A grade of 1 denotes marked excellence. A grade of 2 indicates that the student's work has been thoroughly satisfactory. A grade of 3 denotes a pass. A grade of 4 denotes a condition. Courses in which students have obtained a grade of 4 will not be credited to them, except upon passing a second examination. A grade of 5 indicates failure and the necessity of repeating the entire course. The report in case of absence from the examination, or failure to perform any of the allotted work in a given course, is *incomplete*. Work so required must be made up within a year.

A student who has received a grade of 2 or a grade of 3 in a given subject is not allowed to take a second examination for the purpose of improving his grade.

#### 13. CONDITION AND FAILURES

For the removal of conditions, students shall have the privilege of taking one examination during the week preceding the opening of the following

session or any other examination required by the faculty without the payment of a fee. Examination may be held at other times only by special permission of the faculty and on payment of ₱10, provided that all conditions must be made up before the opening of the following session. Only students who are in residence will be allowed to take examination for removal of conditions.

Any student who is reported as having failed in a given subject of study or after being conditioned, does not pass a second examination for the removal of the condition, will have to repeat every such subject with the class that next takes it; unless, on recommendation of the instructor in charge, the faculty shall permit him to review a subject in which he is thus conditioned with the assistance of an acceptable private tutor; in which case he will be excused from attending the recitations, but will be required to take the regular examinations at the end of the year or semester.

Any student who has been reported with a grade of *Incomplete* or a grade of 4, who does not within a year better such grades, will automatically be recorded as having failed in such subjects. Any student who, for reasons of poor scholarship, is dropped with the approval of the Dean from any subject of study by the instructor, will be given a grade of 5 in that subject, unless the faculty shall otherwise determine.

No candidate is to be recommended by the Council for any degree, title, or certificate until all required examinations have been passed.

#### **14. MILITARY SCIENCE AND PHYSICAL TRAINING**

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts. In addition to Military Science, all students of the University, except those exempted by proper authority, are required to take one hour a week of physical training during their first four years of residence. Attendance is governed by the same rules applicable to other courses. Examinations are held and grades reported. For full particulars regarding military science and tactics and physical education, see pages 77-86 and 87-90, respectively.

#### **15. ATHLETIC ASSOCIATION OF THE UNIVERSITY OF THE PHILIPPINES**

Every student registered in any of the colleges or schools of the University, except the School of Fine Arts, will pay an athletic fee of ₱1.50 a semester, which will be turned into the treasury of the athletic association.

Each student becomes, upon payment of this fee, a member of the University Athletic Association. Payment of the fee entitles the student to admission to all University athletic contests. The government of this association is vested in a board of control, which consists of a president, a secretary-treasurer, and seven members, elected by the University, and seven student representatives from the colleges of the University elected by the student bodies of the colleges concerned. The physical director of the University is a member ex-officio of the board of control. The board of control shall supervise the management and finances of every athletic organization representing the University.

## THE UNIVERSITY

### B. GENERAL INFORMATION

#### 16. TUITION FEES

With the exception of the Colleges of Agriculture and Veterinary Science, tuition fees ranging from ₱10 to ₱50 per semester, are charged in the various colleges and schools.

#### COLLEGE OF MEDICINE

A tuition fee of ₱25 a semester is charged for the course leading to the degree of Doctor of Medicine.

A tuition fee of ₱25 a semester is charged for the course leading to the degree of Doctor of Dental Surgery.

A tuition fee of ₱25 a semester is charged for the course leading to the degree of Pharmaceutical Chemist or for the degree of Bachelor of Science in Pharmacy.

#### COLLEGE OF LAW

A tuition fee of ₱50 a semester is charged for the course leading to the degree of Bachelor of Laws.

A tuition fee of ₱50 is charged for the law review course.

The fees for special courses for peace officers and justices of the peace are ₱15 for one summer session or ₱5 a subject.

Students of other colleges taking courses in the College of Law amounting to less than ten units a semester will be charge a tuition fee of not exceeding ₱5 a unit a semester.

#### COLLEGE OF LIBERAL ARTS

A tuition fee of ₱25 a semester is charged for the courses leading to the title of Associate in Arts. For courses in the Senior College or in the graduate division of the College of Liberal Arts, a fee of ₱40 per semester is charged.

A tuition fee of ₱2.50 a unit is charged for the summer course with the usual deposits and laboratory fees charged to regular students.

#### COLLEGE OF EDUCATION

A tuition fee of ₱25 a semester is charged to regular students, and of ₱5 a subject a semester to special students.

A tuition fee of ₱40 a semester is charged in the University High School.

A tuition fee of ₱2.50 is charged for the summer course with the usual deposits and laboratory fees charged to regular students.

#### COLLEGE OF ENGINEERING

A tuition fee of ₱25 a semester is charged for any course leading to a Bachelor's or Master's degree.

#### JUNIOR COLLEGE OF THE UNIVERSITY (CEBU)

A tuition fee of ₱25 a semester is charged for any preparatory or general course given in this college.

#### SCHOOL OF FINE ARTS

A tuition fee of ₱10 a semester is charged every student in the advanced course and ₱2 a semester in the elementary course.

#### SCHOOL OF FORESTRY

A tuition fee of ₱25 a semester is charged for the degree course.

**CONSERVATORY OF MUSIC**

The tuition fee for regular students in the Conservatory of Music is ₱25 a semester plus ₱15 for instrument fee. Special students shall pay a fee of ₱12 a month, for which they shall not receive more than two hours of instruction a week.

**GRADUATE DIVISION**

A tuition fee of ₱15 is charged of every graduate student taking not more than five units of work a semester; ₱30 for more than five but not exceeding ten; and ₱40, for more than ten units of work a semester.

**LABORATORY FEES**

A fee of ₱5 a semester is charged in all laboratory or technical subjects giving five units of credit for a semester except Chemistry in which a fee of ₱15 is charged, and ₱10 per semester in those giving more than five units of credit a semester.

**17. DEPOSITS**

A deposit of ₱20 is required in the College of Medicine.

Each student of the Colleges of Education, Liberal Arts, Engineering, Agriculture, and Veterinary Science is required to deposit ₱15 in addition to the regular fees with the secretary on matriculation.

These deposits are for the purpose of covering any loss of apparatus supplies, books, etc., or any damage to University property which may properly become a charge against the students.

Whenever a charge is made against the deposit of a student, he is automatically required to deposit an additional sum sufficient to bring the deposit up to the original amount. At the beginning of each semester, as a prerequisite of registration, each student must be prepared to deposit such amount as may be necessary to bring his deposit up to the original amount of ₱15 or ₱20, in case any deduction has been made on account of loss or breakage.

**18. MISCELLANEOUS FEES**

A fee of ₱2.50 is charged for library privileges.

A fee of ₱5 is charged for delayed registration.

A fee of ₱5 is charged for any change in registration from one college to another.

A microscope fee of ₱5 a semester is charged in the College of Medicine and the Schools of Pharmacy and Dentistry.

A fee of ₱10 is charged for all diplomas and certificates except in the case of "second-class midwives."

A fee of ₱10 is charged for each special examination. (See "Removal of condition.")

An athletic fee of ₱1.50 a semester is charged every student in all the colleges and schools of the University except the School of Fine Arts.

A subscription fee of ₱1 a semester is charged for the "Philippine Collegian."

All fees and deposits must be paid on matriculation and before admission to classes, provided, the president may, in his discretion, permit payment to be deferred until such time as he may deem advisable, the student to submit a promissory note for the amount of such fees or deposits, properly indorsed by two responsible persons.

No candidate will be recommended to the University Council for any degree, title, or certificate until all indebtedness has been cleared.

#### **19. FEES NOT RETURNABLE**

Students who have paid their tuition and laboratory fees, and who voluntarily leave the University, are not entitled to a remission of fees. Laboratory fees will not be remitted after one week from date of matriculation where change is made from one course of study to another.

#### **20. STUDENTS' EXPENSES**

The expense for textbooks, instrument, etc., varies from ₱25 to ₱100 per annum.

The cost of living in Manila varies from ₱40 to ₱60 a month.

A fair estimate of the yearly expenses of the students is from ₱400 to ₱800 a year, but much depends on the personal tastes of the student.

#### **21. RULES ON ATTENDANCE**

[For all schools and colleges of the University]

1. Every college of the University shall require that students be in actual attendance from the first day of each semester and thereafter.

2. No student shall be registered later than the date specified on the University Calendar except under extraordinary and justifying circumstances to be determined by the dean or director of the college concerned.

3. Any student, who, for unavoidable cause, is obliged to absent himself from any college or required university class, must obtain written excuse from his dean or director to be presented to his instructors.

4. Every excuse for absence must be asked for within two class days to be counted from the day a student returns to his classes and must be presented to the instructor without delay. Failure to comply with either provision of this rule shall cause the absence to be unexcused.

5. Excuse for absence does not absolve the student from doing the work covered by the class during his absence, to the satisfaction of the instructor in charge.

6. Tardiness may be considered as absence.

7. Any student who, without permission of the instructor, leaves the class room during a recitation, a lecture, or a laboratory exercise, shall be marked absent.

8. Each absence on the day immediately preceding or following vacation or holiday shall be counted as two.

9. Prolonged leave of absence must be sought by written petition to the dean or director, and the petition must specify the length of time (not more than one year) and the reason for which the leave is desired. Indefinite leave of absence shall not be granted.

10. Students who discontinue any of their work without formal leave of absence shall have their registration privileges curtailed or entirely withdrawn.

11. Flagrant cases of absence shall be reported to the Faculty for adjudication.

12. A student shall be given a grade of incomplete in a course if he is absent from the final examination, for any cause, except illness or some equally compelling reason. In case of justifiable absence, he may be given a special examination on the recommendation of the dean or director.

13. Honorable dismissal, indicating that the student who in good standing has voluntarily severed his connection with the University, should be sought by written petition from his parent or guardian to his dean or director. Without such petition, no record of honorable dismissal will be made.

14. Only those who are present in person or who are especially excused by the dean or director may receive their diplomas on commencement day.

#### **22. SCHOLARSHIPS**

A valedictory scholarship with free tuition fee for a period of one academic year is granted to the student highest in rank (valedictorian) graduating from a four-year standard high school, trade school, commercial school, or other private school of the same standing in the Philippines.

A salutatory scholarship with free tuition fee for a period of one academic year, is also granted to the student second in rank (salutatorian) graduating from the schools mentioned in the preceding paragraph, provided he is unable to pay the required tuition fees as certified by the director or principal of the school from which he has graduated or by the municipal president of his town; and provided, further, the recipient shall perform in the University such kind of work as may be assigned to him by the President.

Formal application for these scholarships should be made in writing before registration, and the application should be accompanied by a certificate signed by the principal or by the director of the school from which the applicant has graduated. These scholarships are granted only on condition that the student meets all the requirements for admission to this University.

A cum laude scholarship with free tuition fees for a period of one academic year is granted to students of this University who, on graduation, receive any degree with "cum laude" or better. This scholarship will be granted in any college or school of the University in which the student desires to continue his studies.

In the College of Liberal Arts there are two Yangco scholarships open to commerce students. These scholarships entitle the holders thereof to free tuition for the last two years of the prescribed course in commerce, provided they complete the first two years with highest grades, and provided further they continue to maintain a high standard of scholarship in their studies.

In the College of Engineering there are two Limjap scholarships open to freshmen. These are awarded on the basis of competitive examination, and the holders thereof shall enjoy the privilege for a period of four school years on condition that they maintain a high scholastic record during the tenure of their scholarship.

There are twenty scholarships provided for in Act No. 2302 of the Third Philippine Legislature for the College of Veterinary Science. In addition, there are several municipal and provincial scholarships available to students in this college including two Limjap scholarships. The Veterinary faculty scholarship committee shall decide the distribution and selection of Government scholarships which shall be awarded on the basis of the following points:

1. The student shall be at least 18 years old. He must be a regular student of the College of Veterinary Science. He must have at least an average of 2 (80 per cent or above) and possess a high scholastic and moral standing.

2. No student shall be awarded a scholarship unless he fulfills the requirements of the above paragraph. Any delinquent subject in his record is sufficient to disqualify him.

3. The awarding of scholarships to members of the first-year class shall take place on August 15, thereby allowing a period of probation during which instructors will have an opportunity of becoming acquainted with the students through personal contact and of appraising their scholastic abilities. With the upper classmen, however, the awarding of pension shall be made shortly after the opening of classes and in accordance with their records of the preceding term, the highest general average, other things being equal, shall be the deciding factor.

4. The decision of the faculty scholarship committee shall, however, be subject to the final approval of the faculty of the College of Veterinary Science.

5. Scholarships are awarded every semester.

6. Scholarships that are not utilized during the academic year shall be granted to the juniors as allowance in case their services are engaged by the Bureau of Agriculture during summer vacation.

### 23. TITLES, CERTIFICATES, AND DEGREES

Upon satisfactory completion of a prescribed course of instruction, duly registered students will be granted, on the recommendation of the faculty concerned and subject to the approval of the University Council and the Board of Regents, the appropriate title, certificate, or degree to which such a course leads. The University grants the following titles, certificates, and degrees:

#### TITLES AND CERTIFICATES

Certificates of Proficiency in Painting, in Sculpture, in Engraving, and in Music are granted on satisfactory completion of the respective prescribed courses. Certificates of Proficiency are also granted to graduates of the Commerce course proper who have not taken the first two years of the course in Commerce or its equivalent.

The title of Associate in Arts is granted after satisfactory completion of a two-year prescribed course of study in the College of Liberal Arts.

#### DEGREES

On completion of the four-year collegiate course in Agriculture, the degree of Bachelor of Agriculture is conferred.

The degree of Pharmaceutical Chemist is granted after satisfactory completion of the three-year course in Pharmacy.

The degrees of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, Bachelor of Science in Agriculture, in Library Science, in Commerce, in Education, in Civil Engineering, in Mechanical Engineering, in Electrical Engineering, and in Pharmacy are conferred on duly registered students upon satisfactory completion of the regular four-year courses of study.

On satisfactory completion of the three-year course in Dentistry, the degree of Doctor of Dental Surgery is conferred and of the four-year course the degree of Doctor of Dental Medicine; the degree of Doctor of Veterinary Medicine is conferred on satisfactory completion of the four-year course in Veterinary Medicine.

The four-year course in law, based on completion of the two-year "preparatory law course" or its equivalent, leads to the degree of Bachelor of Laws; the five-year course in Medicine, based on the completion of the two-year "preparatory medical course," leads to the degree of Doctor of Medicine.

The University also confers upon duly registered graduate students, on satisfactory completion of the respective courses of instruction, the degrees of Master of Arts, Master of Science, Master of Science in Agriculture, in Civil Engineering, in Mechanical Engineering, in Electrical Engineering, in Mining Engineering, and Master of Laws. (See pages 60-68 regarding rules and regulations governing graduates studies.)

**24. CAPS, GOWNS, AND REGALIA**

The University of the Philippines has adopted for its official academic processions, meetings, and commencement exercises the following styles of caps, gowns, and regalia:

The gowns shall be black and of three types as follows:

- (1) The Bachelor's gown, of worsted stuff with long pointed sleeves.
- (2) The Master's gown, of silk with long closed sleeves. The sleeves should be square at the end, and should come well below the knee, the wearer's arm coming through a slit near the elbow.
- (3) The Doctor's gown, similar to a judge's gown with full round open sleeves faced with velvet, and having three velvet bands.

The candidates for the degrees of Bachelor and Master of Arts shall wear black tassels on the caps. The candidates for the degrees of Bachelor and Master of Laws and of Science shall wear on the caps tassels of the color appertaining to their respective departments of learning; the various colors being as follows:

- Arts and letters, white.
- Theology, scarlet.
- Laws, purple.
- Philosophy, blue.
- Science, gold yellow.
- Fine Arts, brown.
- Medicine, green.
- Music, pink.
- Engineering, orange.
- Pharmacy, olive.
- Dentistry, lilac.
- Veterinary Science, gray.
- Forestry, russet.
- Library Science, lemon.
- Education, light blue.
- Oratory, silver gray.
- Commerce and Accountancy, drab.

The hoods to be worn are to be lined with the color representing the official colors of the University and in addition thereto is to bear a chevron, double or triple chevron, showing the color of the department of learning to which the degree pertains.

**25. COMMENCEMENT EXERCISES**

The commencement exercises for all graduates of the University, excluding those of the School of Forestry, School of Nursing, Conservatory of Music, and School of Fine Arts, are held on the same day and only once a year.

Only candidates for the Bachelor of Laws, the Master and the Doctor's degrees shall receive at the commencement exercises the approved hood appertaining to said degrees.

Only candidates for the Bachelor, Master, and Doctor's degrees and for the certificates from the School of Pharmacy shall participate in the commencement exercises of the University.

A gold or gold-yellow tassel on the caps is to be worn by the President, deans, and Doctors of Philosophy, Tropical Medicine, Science, and Laws.

The deans of the different colleges shall present the graduates in their respective colleges, provided, that the director of the School of Pharmacy shall present his candidates in his school. Other schools under the control of the University will hold a separate commencement on a date as may be fixed by the president on the recommendation of the dean. The members of the teaching staff of the University shall wear at the commencement exercises their own caps and gowns as used in the universities where they were graduated.

### C. GRADUATE STUDY

Graduate students may register in the University and pursue advanced studies under the direction of the University Council Committee on Graduate Studies, hereinafter usually referred to as the "University Committee," and of the Committee on Graduate Studies of the college in which the major work is to be taken, hereinafter usually referred to as the "College Committee." Work so taken may be regular, leading to an advanced degree, or spécial, in some particular subject, not leading to a degree. Students without a baccalaureate degree or its equivalent may be admitted to graduate courses under restriction.

#### 26. ADVANCED DEGREES

The University is prepared to offer, in certain departments, graduate courses leading to the degrees of Master of Arts, Master of Science, and Master of Laws.

Regular graduate work is offered primarily to encourage and induce independent thought, to develop the investigative spirit and encourage research, and to prepare the way for specialization in selected fields in which the student has already gained more or less familiarity in his undergraduate work. The Master's degree is intended to denote distinct ability and not merely extra work accomplished. Attendance at lectures, the passing of regular examinations, and formal compliance with prescribed conditions do not necessarily entitle a student to recommendation for a degree. For this reason, students are admitted as graduate students, and are subsequently admitted to candidacy only after they have demonstrated ability in graduate work. Acceptance as a regular graduate student does not imply necessary acceptance as a candidate for an advanced degree.

#### 27. RULES GOVERNING GRADUATE STUDY

##### A. ADMISSION REQUIREMENTS

Persons of good moral character who hold baccalaureate or other degrees involving not less than four years of undergraduate work in this University, or equivalent degrees from other Colleges or University acceptable to the University, and persons who present evidence of having had courses equivalent to those required for an acceptable degree, shall be eligible for acceptance as graduate students.

Such students shall be classified as "regular," prospective candidates for master's degrees, and "special," not prospective candidates for such degrees.

No applicant shall be accepted as a regular student unless he presents evidence of a reading knowledge of French or German. Spanish may be substituted in the case of students majoring in any of the social science

departments of the College of Liberal Arts, and Chinese or Japanese in the case of students majoring in subjects, the references for which are written in Chinese or Japanese. The applicant will be given oral examination by the corresponding language professor on any subject to be chosen by the major department.

#### B. REGISTRATION AS REGULAR GRADUATE STUDENT

Application for registration as a regular graduate student, prospective candidate for a degree, shall be made not less than one full academic year previous to the granting of the degree.

Application shall be made in writing to the graduate studies committee of the college in which the major work is to be taken, not less than one week before the regular period of registration for that college. In exceptional cases, however, applications may be received at a later period at the discretion of the University Committee.

The application shall be made on an application blank to be obtained from the Secretary of the University or from the chairman of the College Committee. It shall contain among other data: (a) a statement of the major subject to be taken; (b) a certificate attesting possession of a reading knowledge of the required foreign language to be signed by the head of the corresponding department in this University; and (c) a statement of approval by the head of the department in which the major work is to be taken. The adviser desired may also be suggested if the applicant chooses. It shall be accompanied by: (1) a certified statement of the nature, date, and source of the baccalaureate or other degrees if held; (2) a certified detailed statement of all courses taken in the undergraduate curriculum by years, where taken, and the grades obtained in each; and (3) in the case of a student from another institution a statement of good moral character signed by the proper authority of that institution, or by two persons known to members of the College Committee.

The major course shall be in a subject with which the student is already more or less familiar, and the amount of undergraduate work directly preparatory to it shall be clearly specified in the original application.

Each college committee shall consider all applications received, and forward them not later than the first day of registration with a statement of approval or disapproval with reasons therefor in case of the latter, and with nominations of advisors, to the chairman of the University Committee, who is empowered to accept or reject applications, subject to final confirmation of the committee.

The chairman of the University Committee will immediately notify the student of the acceptance of the application and the advisor of his appointment.

The student and advisor shall then confer immediately and draft a detailed statement of work to be taken, including the formal courses and the research work on which the thesis is to be based. This statement of work shall be accompanied by a tentative outline of the thesis showing the nature, purpose, and scope of the work. The proposed thesis title need not be specified at this time. The proposed curriculum shall be approved by the head of the major department if he is not the advisor, and submitted to the college committee within three days.

The college committee shall consider the proposed curriculum and, with the approval of the student, his advisor and the head of the major depart-

ment, shall make such changes as may be found desirable. It shall immediately endorse all such curricula to the university committee signifying its approval, or disapproval, with reasons. The University Committee shall then consider the curricula.

No person who is a member of the teaching staff of the university or who is otherwise employed in an engrossing occupation shall be permitted to undertake work, formal or thesis, of more than ten units value in any one semester.

#### C. REGISTRATION AS SPECIAL GRADUATE STUDENT

Application for registration as a special graduate student shall be made on an application form for special students and shall be submitted to the chairman of the College Committee not less than one week before the regular period of registration.

The application shall state specifically the course or courses desired to be taken and shall contain a statement of approval by the head of the department in which most of the courses will be taken. The language requirement may be waived if recommended by the department.

The application shall be accompanied by (1) a certified statement of the nature, date, and source of the baccalaureate or other degrees held; (2) a certified detailed statement of all courses taken in the undergraduate curriculum by years, where taken, and the grades obtained in each; and (3) in the case of a student from another institution a statement of good moral character signed by the proper authority of that institution, or by two persons known to members of the College Committee.

The application shall be forwarded by the College Committee with nomination of advisor to the chairman of the University Committee who is empowered to accept or reject applications, subject to the confirmation of the University Committee. The chairman will immediately notify the student and the advisor of the action taken on the application.

A special student desiring to be re-registered as a regular student shall make formal application in the regular manner, fulfilling all requirements at the time of re-registration, not less than one full year previous to the granting of the degree. He and his advisor will then prepare his final curriculum.

Credit toward a degree shall not be given for courses taken while a special student, except with the approval of the heads of departments concerned and the graduate studies committee.

#### D. ADMISSION TO CANDIDACY

Regular graduate students, prospective candidates for an advanced degree, shall make formal application for candidacy on a prescribed form not later than five days after the opening of the semester in which the degree may be awarded.

This application shall set forth the proposed title of thesis, and shall include a statement of the formal courses already completed and being taken, the names of the instructors in charge, and grades already obtained. It shall be endorsed by the heads of all departments concerned and by the advisor. It shall be forwarded to the college committee which shall endorse it to the University Committee for final action.

No candidate for an undergraduate degree shall be accepted as a candidate for a graduate degree.

**E. REQUIREMENTS FOR GRADUATION**

The Master's degree shall be awarded on fulfillment of the following general requirements:

1. The student shall have been in residence for at least one year after registration.

2. The student shall have completed at least thirty units of approved work in this University. Of these, twenty units shall have been in formal courses. The remaining ten units shall be credited to the research course or other work on which the thesis is based, provided that this work shall have been of a *bona fide* investigative nature carried out under the close supervision of the head of the major department or of some one formally delegated by him, and shall have involved not less than the equivalent of twelve and one-half to fifteen hours of actual work a week for the entire year. Of the twenty units of formal courses, not less than ten shall have been in a major graduate course. Not more than ten units shall be devoted to minor subjects in not more than two other departments; of these not more than five units may be credited for courses primarily of undergraduate nature, *Provided*, That for this purpose such courses shall carry but one-half their normal (undergraduate) credit value. The selection of minor subjects shall be such as to insure breadth of training as related to the major subject.

No credit toward a Master's degree shall be given for any undergraduate work done previous to registration as a graduate student. Graduate work, however, done at this University previous to registration may be credited to the Master's degree upon the unanimous vote of the University Committee. No credit shall be given for formal courses in which a grade lower than "2" is obtained. No graduate student who is conditioned in a given course may pass off the condition and receive graduate credit for it. No credit shall be given under any circumstances for work that has been credited to any other degree. No credit shall be given toward a graduate degree for work done in any other institution. No credit shall be given for any work done *in absentia* except in the preparation of the thesis, and this only on the formal recommendation of the College Committee and on approval of the University Committee.

3. The student shall have prepared a satisfactory thesis which shall have been submitted in standard form as specified below.

4. Candidates requiring more than one year to complete their work must have fulfilled all requirements adopted in the interval and in force at the time the degree is conferred.

5. Upon completion of all the required work, the thesis having already been submitted, the student's advisor shall, not later than two weeks before the end of the semester, prepare a statement to that effect, setting forth the courses taken, the grades obtained, and the subject of the thesis. This statement, approved by all the heads of department concerned, shall be submitted to the College Committee. It shall then be forwarded to the University Committee with a statement of the time and place selected for the general examination.

6. Each candidate shall be subject to a general examination in addition to the regular course examinations. This examination shall be conducted by the Graduate Studies Committee of the college in which the major subject is taken, led by the major department. It shall be participated

in by the instructors of the minor subjects, in whatever colleges these were taken, and by a representative of the University Committee other than the member of the examining committee.

Final recommendation for the degree shall depend on the student's general ability as demonstrated by the general examination, thesis, and the testimony of his instructors more than on his ability to pass formal examinations.

Candidates who fail to pass the oral examination at a second trial shall be permanently debarred.

#### F. THESES

Theses may be on subjects involving original investigation or re-investigation of published work, to be approved by the heads of the departments in which the major courses are taken, by the advisors and by the Committees on Graduate Studies. Titles of theses shall be submitted for final approval at the time of applying for candidacy.

The first draft of the theses for the Master's degree shall be given to the advisors for necessary correction and editing on or before January 1st. From the advisor, the draft embodying necessary corrections, shall be submitted to the major department for final correction and criticism of the subject matter.

The theses in final form and accompanied by a signed statement from the instructor in charge setting forth the nature of the work done, the manner in which it was carried out, the approximate amount of time devoted to the work by the student, and the degree of supervision to which it was subjected shall be placed in the hands of the chairman of the corresponding college committee not later than February 15th. The College Committee shall within three days forward all theses to the University Committee, indorsed favorably or otherwise.

The Chairman of the University Committee shall assign theses as received to members of that Committee or to other persons designated by him for criticism of subject matter, manner of presentation, and English used.

The theses shall be returned by the critics to the candidates concerned for correction, if any, in compliance with the critics' suggestions, not later than March 1. In case of disagreement between the critics and the major professor concerning some doubtful points, the opinion of the major professor shall prevail, unless a unanimous vote of the members present of the Council Committee shall decide otherwise, a note to that effect to be attached to the thesis.

The corrected theses, suitable for publication and ready to be submitted with the comments of the critics and the answers to the comments by the major professors, shall be in the hands of the University Committee not later than two days before the date on which the Committee shall decide the case of candidates for graduation.

Theses presented for acceptance shall be considered property of the University, and shall be in standard form for permanent preservation. Four copies shall be submitted to the University Committee, to be distributed as follows: one for the major department, one for the College Library, one for the University Library, and one for the chairman of the University Committee.

Theses shall be typewritten on standard high grade, fairly heavy 8 by 10½-inch white paper. The pages shall be well marginated, and the writing double-spaced throughout except that direct quotations of more than two lines shall be single-spaced in separate, inset paragraphs. The pages of the body of the thesis shall be numbered consecutively.

Bibliography may appear as footnotes, but it is preferred that it should be assembled on a separate sheet or sheets at the end, the items arranged and numbered consecutively in the order of citation.

The thesis shall be permanently bound in khaki, to conform with the standard adopted by the University Committee. The back shall bear a legend to conform with the following example: Thesis: Master: of: Science: Rosario: 1920. If the bound volume is too thin to permit this arrangement, the inscription shall be printed lengthwise, reading from below upward. The lower 5 centimeters of the back shall be without inscription, for library label.

The title page shall bear only the following inscription properly fulfilled:

(**FULL TITLE OF THESIS, IN CAPITALS**)

(**NAME OF CANDIDATE**)

**SUBMITTED TO THE GRADUATE STUDIES COMMITTEE**

**COLLEGE OF** \_\_\_\_\_

**UNIVERSITY OF THE PHILIPPINES**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF**

(**NAME OF DEGREE, IN CAPITALS**)

(**DATE**)

On the next sheet shall appear the following certificate: "The thesis attached hereto, entitled ..... (full title), prepared and submitted by ..... (full name), in partial fulfillment of the requirements for the degree of ..... (name of degree), is hereby accepted." Blanks shall be provided for the signature of the advisor and the head of the department in which the work was done. Below this shall appear: "Accepted as partial fulfillment of the requirements for the degree of ....." with provision for the following signature: "Committee on Graduate Studies, College of ..... Chairman: ..... Below this, similar provisions shall be made for signature of the chairman of the University Council Committee on Graduate Studies.

On a third sheet shall be set forth detailed biographic data, giving full name of the candidate, date and place of birth, institutions in which educated, with dates, and certificates, diplomas, degrees, and honors conferred upon him, studies abroad, and previous publications, special or general. This shall be signed by the candidate.

The first page of the body of the thesis shall be headed with the full title of the thesis followed by a topical index, each item giving the page on which it is to be found. Corresponding topical headings shall appear in the heading of the thesis.

**G. SCHOLARSHIP AND FAILURES**

Any accepted student who shows evidence of serious deficiency in the language requirement shall be dropped or required to discontinue work pending the removal of the deficiency.

Any student showing evidence of serious deficiency in English shall be subject to the same conditions.

Any student who is conditioned or who fails in graduate courses totalling 15 units or more shall be permanently disqualified as a candidate for the degree.

**H. AWARDING OF GRADUATE DEGREES**

The degrees awarded shall be Master of Arts, Master of Science, and Master of Laws, *except* that degrees given for work in technical subjects; as, Engineering, Agriculture, Commerce, etc., shall include a designation of the special branch.

All Master's degrees awarded in the University shall be considered university, and not college, degrees. The names of candidates for all Master's degrees shall be presented to the University Council by the Chairman of the University Council Committee on Graduate Studies, and diplomas shall be signed by him, as well as by the dean of the college in which the major subject was taken, and by the President.

No graduate degree shall be awarded to any student at the Commencement at which he receives an undergraduate degree. A student accepted for registration before obtaining his primary degree shall obtain it before being accepted for candidacy, and the first diploma will be presented to him informally in case the graduate diploma is awarded.

**FURTHER OPPORTUNITIES FOR GRADUATE STUDY**

For those who received the Master's degree, there are exceptional opportunities in several departments to do graduate or research work.

**Botany.**—The herbarium of the Bureau of Science, which is rapidly being increased, now contains over 125,000 mounted specimens, of which approximately two-thirds are Philippine and the remainder extra-Philippine. The material is arranged by families, genera, and species, so that everything on hand is readily accessible for study. This collection, with the accompanying library facilities of the Bureau of Science, forms one of the best centers for taxonomic research outside of Europe and North America.

The extra-Philippine material is for the most part from the Tropics, and in developing this part of the herbarium special attention has been given to securing representative botanical material from the Indo-Malayan region in general; the herbarium contains exceedingly valuable collections of plants from India, southern China, Formosa, Cochin China, the Malay Peninsula and Archipelago, Australia, and Polynesia.

The Philippine collection is the largest and most valuable extant, containing representatives of nearly all the species definitely known to grow in the Archipelago. It is especially rich in types and cotypes. The great bulk of the herbarium is made up of the phanerogamic collection, but the cryptogamic section includes exceedingly extensive collections, for the most part identified, of ferns and fern allies, as well as large collections of named mosses, scalemosses, fungi, lichens, and algae.

The Bureau of Science is thoroughly equipped for those electing to carry on work in plant physiology and in systematic or economic mycology. The botanical library is very extensive and contains a practically complete collection of books applying to the flora of the Philippines and to the Indo-Malayan region as a whole. The list of general botanical publications is extensive, and the library is rich in sets of periodicals, proceedings of societies, etc.

The College of Agriculture at Los Baños is situated in a remarkably favorable spot for botanical work. The college buildings are at the very foot of Mount Maquiling, and not distant from the shore of Laguna de Bay.

Maquiling rises to a height of about 1,500 meters above the lake, and the trip to the summit and return can readily be made in a day. Within easy reach is the much higher mountain, Banajao. "From the lake to the mossy forest on the summit of Maquiling, every great tropical formation, except the mangrove and the alpine shrub, is present within convenient reach. Aside from the large number of introduced plants on the campus, there is an extraordinarily large local flora; and this vegetation never rests."

*Chemistry.*—The Department of Chemistry in the College of Liberal Arts offers graduate courses for students desiring to specialize in Chemistry. Facilities for research work are also available for students desiring to complete a dissertation for the Master of Science degree. The laboratory equipment and the library of the Bureau of Science are also available for graduate students. Graduate students desiring to work on chemical research problems will be given every opportunity for their work which is usually published in the Philippine Journal of Science. There are numerous chemical problems which are especially concerned with tropical products. Tropical chemical research offers, therefore, an enticing field for advanced students who desire to broaden their training. Further particulars concerning chemical research will be found under "Chemistry" on page 116.

*Zoölogy.*—The Zoölogical laboratory is situated within a few hundred yards of the shore of Manila Bay. The tropical climate and proximity of the sea afford unexcelled opportunity for the advanced zoölogical work. Many places of interest to zoölogists are easily accessible by short steamer journeys. A marine biological survey has been instituted by the University and the Bureau of Science. Investigators who desire to accompany the field expeditions will be welcomed. The laboratory possesses a fair collection of the representatives of local marine and fresh water fauna. The Bureau of Science has large and fairly complete collections of Philippine birds, reptiles, and insects. The scientific library of the Bureau of Science contains nearly all of the principal sets of zoölogical literature.

*History.*—The Philippine Library, which includes the Tavera, Retana, Compañía Tabacalera, Zulueta, and Ponce Collections, possesses by far the best collection of Filipiniana in existence; and as the early history of the Philippines was closely connected with the beginning of European interest in the Far East, it is probable that in this field also the library leads. The convents of the religious orders contain records of the first missionary efforts in Asia and the Government archives have many papers bearing on early political affairs. It is believed that nowhere else will the student find such opportunities in primary sources for studying the

beginnings and progress of European and American influence in the Far East, a subject of increasing interest since the modernizing of the Orient.

*Anthropology.*—The complex racial and linguistic problems afforded by the Philippines and the neighboring oriental countries offer an unusually rich field for original research in anthropology. In addition to unique library facilities, students in this department have the advantage of free access to the collections of the Philippine Museum, the Ateneo de Manila, and the University of Santo Tomas. The ethnological literature in the library of the Bureau of Science, and in certain private collections especially rich in unpublished manuscripts, may also be used by graduate students.

# The University Libraries

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## THE MAIN LIBRARY

The main library of the University is temporarily housed in the north wing of the new chemistry laboratory building situated at the west end of the University campus.

The collection numbers about 15,000 bound volumes, 7,000 unbound volumes, 7,200 pamphlets, 255 manuscripts, and 21 maps excluding those used in the departments. The library receives 542 periodicals and other serial publications, 305 of which are paid subscriptions and 237 are gifts.

Most of the books and pamphlets are catalogued by author, title, and subject, and classified according to the Library of Congress system of classification. Library of Congress catalog cards, with the authors' names already printed, are used, with the subjects and titles of books type-written on them and then arranged in a dictionary catalog in the reading room. Unclassified books and pamphlets are arranged alphabetically by author, and provided with an index on cards and temporary slips.

The collection in this library includes many of the standard general reference works and some of the best writings in the departments of literature, linguistics, pure and applied sciences, social sciences, military science and tactics, and physical education. This library has been receiving as gifts and exchanges catalogs, reports and other materials from American Universities and libraries, and valuable publications from the different Carnegie Foundations in America and Europe. Recently it has been granted the privilege of being a depository of the United States Government documents on the preferential or selective basis.

## COLLEGE LIBRARIES

The libraries of the Colleges of Liberal Arts, Education, and Engineering are embodied in the central library collection.

The College of Law maintains its working collection of about 5,200 volumes, located in rooms 11 and 12 on the first floor of University Hall. This collection is supplemented by the libraries of the Supreme Court, the office of the Attorney-General, and the Philippine Library and Museum.

The library of the College of Agriculture at Los Baños has a collection of about 7,000 bound volumes, 500 unbound volumes, and over 17,000 pamphlets, in addition to over 200 manuscripts (theses and a small number of maps). Its periodical resources consist of 25 paid subscriptions, 142 exchanges, and 175 journals and other serial publications as gifts, mostly on agricultural and scientific subjects. The library is located in the administration building. Recent changes have given enlarged quarters to its well-selected and rapid-growing collection. Its system of classi-

fication has been changed from the Dewey Decimal to the Library of Congress scheme. Library of Congress printed cards are now being used in its catalog.

The College of Veterinary Science and the School of Forestry, also located at Los Baños, have collections of books and receive periodicals related to their special interests.

For research work, members of the faculties and the advanced students in the Colleges of Agriculture and Veterinary Science and in the School of Forestry, also receive the aid of the library of the Bureau of Science in Manila. Large numbers of publications are taken from this library and sent to Los Baños. Much reference work is also carried on in the reading room of the Bureau of Science library.

Junior College at Cebu has a small collection of books, pamphlets, and periodicals, supplemented by the provincial branch of the Philippine Library and Museum and by deposit collections sent annually from the central library of the University.

The libraries of the College of Medicine, including the Schools of Dentistry and Pharmacy, the Conservatory of Music, and the School of Fine Arts still remain to be organized.

The University High School has its working collection annually enriched by acquisition of works carefully selected to suit the needs of the high-school students.

The following sections of the Library rules and regulations of the University of the Philippines govern the use of its books and libraries, the hours of opening, and the fines and penalties for violations thereof:

#### V. USE OF LIBRARIES BY READERS

21. The main library and the libraries of the College of Agriculture, Los Baños, Junior College, Cebu, and the University High School, Manila, are circulating and reference libraries.

22. All other libraries of the University are reference and research libraries designed primarily for the use of the members of the faculties and of students doing advanced work. (For certain exceptions, see section 30.)

##### THE USE OF BOOKS IN THE LIBRARIES

23. The reading-room of the main library and those of the libraries of the College of Agriculture and the Junior College are open to—

(a) All members of the University, except students of the University High School whose needs are provided for in section 24.

(b) Former members of the faculties, alumni, and former students of the University with honorable dismissal. So far as the limits of space permit they are also open to—

(c) Members of other educational institutions in the vicinity, and residents of Manila, Los Baños, or Cebu, engaged in serious study.

(d) Scholars visiting the University of the Philippines.

(e) Employees of the University.

(f) Officers of libraries extending their facilities to the University.

24. The library of the University High School as a reference library is open to members of the faculties of the University, to regents and administrative officers, and to students of the University High School. As a circulating library, it is open only to members of the faculty and students of the University High School.

25. All other libraries are open, as reference libraries, to members of the faculties of the University, to regents and administrative officers, and to students pursuing advanced studies in any department. Other persons of the classes named in sections 23 and 24 make use of them if permitted by the regulations of a particular library, or, in special cases, if granted the privilege by the librarian of the University, or, in respect to a given library, by the adviser or chairman of the committee of that library.

26. Any person making use of the libraries is required to register his name, residence, and occupation.

27. Marking, mutilation, or other willful destruction or carrying away of books or

other publications, is forbidden. (For penalties for violation, see sections 49 to 55, inclusive.)

#### THE CIRCULATION OF BOOKS: GENERAL RULES

28. No book, map, manuscript, periodical, pamphlet, print, or other article is taken from any library, by any person, unless record of withdrawal is made at the time. Any person drawing a book from the libraries or having it charged against him for use in the reading room is responsible for it until its return to the attendant and due record thereof is made.

29. General encyclopedias, dictionaries, and such other books as the libraries deem necessary to withdraw from circulation are used in the reading room only.

30. Unbound numbers of periodicals are used in the libraries only, but other numbers than the last may be drawn by regents, administrative officers, members of the faculties, and graduate students. Exceptions to this rule are made by college, school, and departmental library rules, subject to the approval of the University Library Board. Bound volumes and duplicate copies of periodicals are subject to the general rules for bound books.

#### THE CIRCULATION OF BOOKS IN THE UNIVERSITY

31. Subject to the rules on circulation and the general regulations of the libraries, members of the University (including regents, administrative officers, members of the faculties, registered students not from the University High School, and employees of the University) have the privilege of drawing books from the main library, and the libraries of the College of Agriculture and the Junior College; students of the University High School are taken care of by its own library. Books belonging to the other libraries are reserved for use in the reading room, or circulate under the following rules (32-39).

32. No person not a member of the Board of Regents or of the faculties may hold on loans from any circulating library more than two volumes at one time. This limitation does not apply to books drawn on faculty order. In exceptional cases a student engaged in research may be allowed to exceed this number at the discretion of the officer in charge. For rules governing privileges of advanced students, see section 36.

33. In respect to circulation, books are of four classes:

A. General encyclopedias, dictionaries, and various other reference books are reserved for use in the library only.

B. Certain other books, retaining their regular place on the open shelves or in the stacks are reserved for use only in the reading room during library hours.

C. Books temporarily withdrawn from their regular place on the shelves and reserved for use in connection with particular courses of instruction are given out for limited periods for use in the reading room during library hours.

D. Books not falling under any of the above classes are given out for home use at any hour the library is open.

The main library and the libraries of the College of Agriculture, the Junior College, and the University High School have books of all four classes. Other libraries assign their books to any one or more of the classes, as deemed best.

34. Books of classes A, B, C, and D are used by students and other persons having like privileges, under the following rules:

(a) In all libraries, reference books (class A) are for use in the reading room during the time the libraries are open, for short consultations only, and are not to be taken out of the libraries.

(b) Reserved books (classes B and C) are lent for use in the reading room only, and are subject to recall one hour after they are issued. Each book (under these classes) drawn for use in the reading room should be returned to the charging desk by the person drawing it as soon as he is through with it. It should not be left on the tables or lent to another person.

(c) Books open to general circulation (class D) may be drawn for two weeks. Any book so drawn is subject to immediate recall if needed in the library for purposes of research. Loan of any book is renewable for two weeks.

35. (a) Regents of the University and members of the faculties have the privilege of drawing books of class D, (see section 33) from any of the libraries having such books and retaining them until the end of the current semester, provided however, that—

(b) Books drawn during the first semester may be once renewed for the second semester, if not needed by others having the same privilege; and provided further, that no other applicant for the book has prior claim over that of the person who has held it for 30 days.

(c) Any one desiring to use in the library a book drawn out by a member of the faculties notifies the officer in charge of circulation who may then request the immediate return of the book to the library.

(d) Near the end of each semester each person drawing books under this rule is notified to return all materials charged to him. Books drawn in the first semester are either returned or recharged at the library, but those drawn in the second semester must be returned without renewal of loan

till after they are checked for the yearly inventory.

(e) Books borrowed after sending of notice for the first semester are counted on the second semester.

(f) Immediately after yearly inventory of the Libraries is made, any person entitled under this rule may draw books (class D) for use during vacation, subject to section 34 (c).

36. On the recommendation of a head of a department of instruction, a limited number of advanced students may draw books open to circulation under the following regulations:

(a) All books so drawn must be charged at the delivery desk of the library from which they are drawn and made available to the student at all hours at which the library is open.

(b) All books so drawn must be returned on or before the last day of each semester.

37. A member of the faculties may grant permission to draw books in his name from any of the libraries whose rules do not forbid it on the following conditions:

(a) Such permission must be in writing over the autograph signature of the person granting it.

(b) Such permission is only for the particular book and person named, and is not operative against the rules of a particular library. It does not apply to books under classes A, B, and C.

(c) The instructor granting such permission is personally liable in case the book is lost or injured.

(d) The time limit on such permission is two weeks unless otherwise stated by the instructor, and in no case extends beyond the end of four weeks, unless drawn in the last ten days of the semester, in which case books borrowed are returned before the close of the semester.

(e) Any of the libraries may, after consultation with the librarian of the University and approval by the University Library Board, curtail the privileges herein stated or shorten the periods named, but may not lengthen them.

38. Books may be drawn from the libraries for permanent keeping in laboratories only when there are other copies retained in the libraries. Such duplicates are removed to a laboratory room only when a locked case is there provided for shelving them. They are under the supervision of the instructor who has charge of the room, or some one designated by the head of the department supervising the laboratory work. They are inspected regularly by the head of the readers department and the departmental librarian or library adviser. Access

to them is not denied to other instructors in any department.

#### RETURN AND RECALL OF BOOKS

44. For reasons deemed sufficient by the library advisers of the library to which the book belongs or by the librarian of the University, any book may be recalled at any time, and in such cases must be returned at once on receipt of notice.

45. The library sends a notice in every case where a book is kept more than four days beyond the limit specified in these rules. At the request of the officer in charge, a notice is sent requiring immediate return of a book which is deemed necessary to recall. These notices are issued from the main library by the officer in charge of the circulation; for the College of Agriculture, by its librarian; for the Junior College, by its librarian; for other libraries, by their librarians or assistants in charge. Extreme cases arising in any library are reported to the head of the readers' department for further action.

46. Any book mutilated, lost, or not returned within a reasonable time after notice has been sent, is either replaced within thirty days by the person in whose name the book has been drawn, or said person pays into the hands of the librarian of the University twice the present value of the book, as estimated by the librarian.

#### VI LIBRARY HOURS AND PERIODS OF SERVICE

48. (a) During the University vacations, the libraries are open during regular office hours for the entire University, except when the summer schools are in session.

(b) On all other days of the year, when the regular and summer classes of the University are in session, the main library is open from 7.30 a. m. to 10 p. m.

(c) The libraries have hours of opening arranged in accordance with the needs of their readers, in consultation with the librarian of the University.

#### VII FINES AND PENALTIES

49. On books of class D (see section 33) a fine of 5 centavos a day is charged on each volume not returned according to terms of section 34 (c). When a book has been retained beyond the prescribed time and a notice of the fact has been disregarded, a messenger is sent to secure the book and an additional fine of 25 centavos is charged. No fine is to exceed the cost of the book, and for this purpose the value of a book to the library is not to be reckoned less than \$5.

50. On books of class C, fines are levied according to the following schedule:

For the first hour or fraction thereof after the hour appointed for return, 25 centavos; for each hour after the first, 10 centavos; for each full day, ₱1.

51. (a) For failure to return to the charging desk a book drawn for use in the reading rooms, the fine is 25 centavos.

(b) For removing a book from any library without making a proper record of withdrawal according to the blanks provided, or for removal of a book not subject to loan from any library room, the fine is 50 centavos for the first offense and ₱1 for each subsequent offense. (For further offenses and penalties, see sections 52-55)

(c) For failure to return within 48 hours a book recalled under Section 45, the fine is ₱1 per day or a fraction thereof.

52. Any student who shall willfully, maliciously or wantonly tear, deface, mutilate,

injure, or destroy any book, pamphlet, periodical, manuscript, map, chart, engraving print, or picture, or other property of the University libraries; or who shall take and carry away with intent to convert to his own use, any book, pamphlet, periodical, manuscript, map, chart, engraving, print, or picture, or other property of said libraries, shall be punished by suspension or expulsion as the case may be, and by a fine not exceeding fifty pesos (₱50), to be recommended by the librarian through the President to the Executive Committee of the University Council for final action.

53. Students refusing or neglecting to pay fines due, forfeit the privilege of using the libraries until fine is paid.

55. No violation of the regulations of the libraries will be excused on the plea of ignorance thereof.

#### ADDITIONAL NOTICE TO STUDENTS

The reading room is for quiet study and those using it are requested to refrain from all unnecessary conversation and from studying with each other. Persons wishing to converse or to discuss any subject are asked to step outside in order that those who stay in the library may not be distracted from quiet study and reference work.

The reading room must not be made a lounging place or a social parlor. Each reader is enjoined to coöperate in making the reading room look neat and orderly.

All students are asked to register at the charging desk before borrowing books or other publications from the library.

No book belonging to the libraries of the University may be used by students as a manual or textbook in the classroom. Dictionaries and other sources of brief information are not for continuous use of a single student.

Transcribers are not allowed to lay the paper on which they write upon any part of the books from which they are copying. The utmost caution against soiling or disfiguring books and other library materials is enjoined. Persons observing any accidental defect in a library book or other publication are requested to report it immediately to the librarian or assistant in charge.

#### THE PHILIPPINE LIBRARY AND MUSEUM

The Philippine Library, situated in Intramuros, is the largest library in the Philippine Islands. It contains some of the best modern works on social science, and is admitted to possess the best collection of Filipiniana in existence. By arrangement with the authorities of the Philippine Library, a large number of books from its shelves are borrowed by the University librarian. The reading rooms and the privilege of borrowing books from the Philippine Library are also open to University students. The following regulations must be observed:

1. The student shall present a statement signed by the secretary of the University to the effect that he is a regularly enrolled student of the University and is in good standing.

2. The student shall agree in writing to obey the rules and regulations of the library and to be personally responsible for any loss that the library may sustain through him.

3. The University of the Philippines will require its students to observe strictly all the rules and regulations of the Philippine Library.

This privilege will be withdrawn from any student who fails to obey the rules and observe the regulations of the library.

#### THE BUREAU OF SCIENCE LIBRARY

The resources of the library of the Bureau of Science have always been freely offered to scientific workers in the University of the Philippines. The reading room of this library is open to all readers from 8 a. m. to 5 p. m., Monday to Friday, 8 a. m. to 4 p. m., Saturdays, and 9 a. m. to 12 noon, Sundays and holidays. The members of the University faculties are given the same privileges as the staff of the Bureau of Science, while students can usually arrange to borrow books urgently needed for home study for limited periods.

This library contains most of the standard dictionaries and encyclopedias in English and Spanish, together with a number in other languages, complete sets of the leading periodical indexes, series of Who's Who, Who's Who in America, Wer Ist's, and other yearbooks, covering a period of years, a set of Blair and Robertson's Philippine Islands, and, in addition, many bibliographies and abstract journals. The library receives regularly through subscription and exchanges, more than one thousand periodicals, most of which are bound and added to the already unusually valuable collection of scientific periodical literature.

#### LIBRARY OF THE MILITARY INTELLIGENCE OFFICE OF THE UNITED STATES ARMY

Through the courtesy of the authorities in charge, the privileges of the library of the Military Intelligence Office (formerly the Military Information Division) of the United States Army are extended to the members of the faculties of the University of the Philippines. This library contains a good collection of books on military history, on colonization and colonial government, on current problems of the Orient, as well as most of the essential secondary materials for the study of Philippine history. The library is located in Fort Santiago, Intramuros.

The total number of volumes available for the use of the faculties and students of the University of the Philippines, through the use of all these libraries, is approximately 247,500 bound volumes, with more than 503,000 additional unbound volumes, pamphlets, maps, and charts.

# **Department of Military Science and Tactics**

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## **ADMINISTRATIVE OFFICERS**

*President of the University:* DR. RAFAEL PALMA

*Commandant:* JOHN MCBRIDE (Captain, United States Infantry)

*Executive Officer:* EMANUEL A. BAJA (Captain, Philippine Constabulary)

*Ordnance and Supply Officer:* MELECIO SANTOS (Lieutenant, Philippine Scouts)

*Assistant to the Commandant at Los Baños:* AMADO MARTELINO (Lieutenant, Philippine Scouts)

## **SECTION CHIEFS**

### **(AT MANILA)**

*Ordnance:* MELITON CABRERA (Sergeant, Philippine Scouts)

*Records Military—Sergeant MELITON CABRERA*

Students—TEOFILO BUSLON

Administration—Mr. JOSE G. PARDO

### **(AT LOS BAÑOS)**

*Ordnance:* VICTOR BELARMINO (Sergeant, Philippine Scouts)

*Records:* ENRIQUE MANGIBIN (Corporal, Philippine Scouts)

## **BUSINESS DIRECTORY**

**OFFICE OF THE COMMANDANT:** General Luna Hall. Hours, 8-12 a. m. and 2-4 p. m.; Saturdays, 8-12 a. m.

**CORRESPONDENCE:** Address all correspondence to the Commandant, Department of Military Science and Tactics, University of the Philippines, Manila.

## **STAFF**

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**JOHN McBRIDE**, Captain of Infantry, United States Army, Professor and Head of the Department of Military Science and Tactics

### **ASSISTANT PROFESSORS**

**EMANUEL A. BAJA**, Captain, Philippine Constabulary

**MELECIO M. SANTOS**, Second Lieutenant, Philippine Scouts

### **INSTRUCTORS**

**AMADO MARTELINO**, Second Lieutenant, Philippine Scouts

### **ASSISTANT TO THE FACULTY**

**MELITON CABRERA**, Sergeant, Philippine Scouts

**VICTOR BELARMINO**, Sergeant, Philippine Scouts

**LINO BAÑARES**, Sergeant, Philippine Scouts

**ENRIQUE MANGIBIN**, Corporal, Philippine Scouts

**JOSE G. HAPIN**, Corporal, Philippine Scouts

**ANANIAS S. ARZADON**, Corporal, Philippine Scouts

## **DEPARTMENT OF MILITARY SCIENCE AND TACTICS**

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### **HISTORY**

Military drill has been a required subject in all of the colleges of the University of the Philippines since 1912. In order to raise the standard of the training the Board of Regents on November 9, 1921, requested the Governor-General to ask the War Department for the services of an officer qualified as professor of Military Science and Tactics. The request was complied with and on March 17, 1922, the officer reported to the Board of Regents which on the same date authorized the establishment of a university department of military science and tactics and approved of the plan of instruction and training. Subsequently the War Department authorized the issue of arms and equipment for the military unit. The course opened July 3, 1922. (Thereafter the term "military drill" has been superseded by the term "military science.")

### **OBJECTS**

The Department of Military Science and Tactics has three principal purposes:

1. To develop patriotic, physically sound, upright, and disciplined citizens.
2. To create a corps of trained officers for the Reserve.
3. To take the lead in fostering University spirit.

### **ENROLLMENT AND REQUIREMENTS**

All physically fit male students of the University are required to enroll for the Basic Course in Military Science and Tactics. The Basic Course covers a period of two years instruction and training and will be taken during the first two years of residence.

The Advanced Course is elective for third and fourth year students who successfully complete the Basic Course. An enrollment in the Advanced Course is for two years.

### **FEES AND EXPENSES**

There is no tuition fee.

The cost of the uniform, cap, and insignia amounts to approximately ₱18. All text books are furnished by the Department. In case a book is lost or is destroyed not through fair wear and tear it must be replaced by the responsible student.

### **EXEMPTION**

Applications for exemption will be submitted to the chairman of the University Council Committee on Military Science and Tactics not later

than two weeks from day of registration or employment. Claims for exemption must be supported by documentary evidence.

Exemptions will be granted and approved any time when due to illness or physical disabilities. In such cases, a certified statement by the physical director should accompany the request before it is forwarded for action by the department head.

Exemptions on account of employment must be accompanied by a certificate written by the guardian or parent with the statement that the applicant is self-supporting. Another certificate of the employer with the statement of hours and days the applicant is employed should accompany the request.

Athletes representing any University team will be exempted from military science, provided that they are properly recommended and certified to by the Physical Director. Those who are candidates for this team but are later rejected are given leave of absence during the training period.

#### LEAVE OF ABSENCE

Students who are unable to attend military science on account of conflict with other subjects, participation in important University athletics, and for temporary physical defects, may be granted leave of absence at the request of said student and with the approval of the department head.

#### ABSENCES

Absences from military science will be acted upon for approval or disapproval by the department head. Excused absences not exceeding five may be made up during the semester in which they occurred by actual attendance making up every hour lost. Unexcused absences will be governed by the demerit system. Absences due to sickness will be certified to by the attending physician and by the physical director before approval by the department head.

#### CEREMONIES

One of the phases of military science given in the University is the participation of the cadet corps in national celebrations. These fall on July 4th—Independence Day, August 13—Occupation Day, October 30th—Philippine Flag Day, November 10—Armistice Day, November 30th—Bonifacio Day, December 30—Rizal Day, February 22nd—Washington's Birthday, October 10—Loyalty Day (Los Baños only), February 22 and 23—University Day.

In addition to the above parades, the cadets will have parades and reviews in connection with their own organization such as annual inspection, inspection by the Governor-General, and ceremonies awarding commissions, medals, and prizes. The cadet corps may also be called to participate in the Army and Navy parade during the Carnival Season.

The President has power to call the cadets to participate in four parades and reviews during the academic year at any time he so desires, even if the students are in intersemester or Christmas vacation: In the latter case, however, no such call will be made between the inclusive dates of December 23–28.

Unless due to physical condition of cadets or to sickness, absences from parades will count fifteen demerits.

**DISCIPLINE****DEMERIT SYSTEM**

1. The following Demerit System is enforced in the interest of the maintenance of efficiency and discipline:

	Demerits
Less than five minutes late for class.....	2
Inattention in class or at drill.....	2
Disobedience of orders.....	5
Failure to comply with regulations.....	2
Absence (unexcused) :	
First .....	3
Second .....	5
Third .....	7

(Tardiness for a period longer than 5 minutes will be considered as absence.)

2. Instruction or training lost by reason of absence or tardiness will be made up.

3. A cadet officer who receives 8 demerits will be reduced to the ranks.

4. A noncommissioned officer who receives 10 demerits will likewise be reduced.

5. Any cadet who receives 15 demerits will be subject to disciplinary action.

6. For all demerits awarded during a semester grades attained in final examination will be reduced an equivalent number of points.

## **THE FOUR-YEAR CURRICULUM IN MILITARY SCIENCE AND TACTICS**

### **BASIC COURSE**

#### **FIRST YEAR**

	Hours	Units
1. Infantry Drill.....	62	
2. Rifle Marksmanship .....	12	
3. Scouting and Patrolling .....	7	
4. Physical Training .....	7	
5. Military Courtesy .....	2	
	90	<b>3</b>

#### **SECOND YEAR**

1. Map Reading and Military Sketching .....	15
2. Infantry Weapons .....	8
3. Musketry .....	20
4. Scouting and Patrolling (Review Course) .....	10
5. Command and Leadership .....	31
6. Military Hygiene, Sanitation, and First Aid .....	6

## THE UNIVERSITY

## ADVANCED COURSE

	Hours	Units
<b>THIRD YEAR</b>		
1. Accompanying Weapons .....	9	
2. Field Engineering .....	22	
3. Military Law and Rules of Land Warfare .....	2	
4. Chemical Warfare .....	5	
5. Service of Security on the March and at Rest.....	24	
6. Map Reading (Review) .....	5	
7. Command and Leadership .....	48	
	115	7
<b>FOURTH YEAR</b>		
1. Tactics .....	47	
2. Military History .....	5	
3. Chemical Warfare .....	5	
4. Tent Pitching and Packs .....	1	
5. Administration .....	6	
6. Command and Leadership .....	56	
	120	7

## SCHEDULE OF INSTRUCTION

## THE BASIC COURSE

## FIRST YEAR

Number of weeks per academic year.....	30
Total available academic hours (3 hours per week).....	90
Number of class-room periods for recitation on prepared subjects....	30
Number of periods for practical instruction.....	60

(NOTE.—The sequence in which the following subjects are listed is not intended to indicate the order in which they will be taught.

## SUBJECTS AND SCOPE

I. INFANTRY DRILL REGULATIONS.....	62
1. Theoretical Instruction.	
(a) Principles and methods of instruction in close and extended order to include the schools of the soldier, squad, platoon, and company.	
2. Practical Instruction.	
(a) Close and extended order drills.	
(b) Participation in Military Ceremonies.	
II. RIFLE MARKSMANSHIP.....	12
1. Theoretical Instruction.	
(a) Lectures and talks explanatory of the general scheme and principles of Rifle Marksmanship.	
2. Practical Instruction.	
(a) The first, second, third, fourth, and fifth steps in Rifle Marksmanship.	
(b) Nomenclature and Care of the Rifle.	
(c) Effect of Weather Conditions—Sight changes—scorebook.	

## SCHEDULE: BASIC COURSE

81

<b>II. RIFLE MARKSMANSHIP—Continued.</b>	<b>Units</b>
2. Practical Instruction—Continued.	
(d) Gallery practice.	
(e) Methods of coaching.	
(f) General rules and definitions.	
<b>III. SCOUTING AND PATROLLING.....</b>	<b>7</b>
1. Theoretical Instruction.	
(a) Principles governing the composition, formation and operations of reconnoitering Patrols by day and night. Differences in methods of operating in open warfare and warfare of position.	
2. Practical Instruction.	
(a) Problems and exercises in Scouting and Patrolling on sand table and terrain.	
<b>IV. PHYSICAL TRAINING.....</b>	<b>7</b>
(a) Recruit instruction in the setting up exercises.	
(b) Talks on the need for, and object of physical training.	
(c) Mass games and athletics.	
(d) College athletics.	
<b>V. MILITARY COURTESY.....</b>	<b>2</b>
1. Theoretical Instruction.	
(a) Lectures on fundamental principles of Military Discipline.	
(b) Relation of courtesy to discipline and efficiency.	
(c) The Military Courtesies of the Army of the United States.	
2. Practical Instruction.	
(a) Demonstration of correct and incorrect manner of rendering courtesies.	

### THE BASIC COURSE

#### SECOND YEAR

Number of class-room periods for recitation on prepared subjects....	30
Total available academic hours (3 hours per week).....	90
Number of class-room periods for recitation on prepared subjects....	30
Number of periods for practical instruction.....	60

(NOTE.—The sequence in which the following subjects are listed is not intended to indicate the order in which they will be taught.)

#### SUBJECTS AND SCOPE

<b>I. MAP READING AND MILITARY SKETCHING.....</b>	<b>15</b>
1. Theoretical Instruction.	
(a) The instruction necessary to enable students to read military maps with facility and to make road, out-post, and position sketches.	
2. Practical Instruction.	
(a) Problems in map reading. Visibility of points, areas, etc.	
(b) Practice in making road, out-post, and position sketches.	
(c) Combined sketching.	

	Units
II. INFANTRY WEAPONS.....	8
1. Theoretical Instruction.	
(a) The Bayonet—Lessons on the bayonet as an offensive weapon. The spirit of the bayonet. Team work.	
(b) The Automatic Rifle—Lessons on the history, characteristics, marksmanship of the weapon, and the organization and equipment of the Auto-Rifleman.	
(c) Hand and Rifle Grenades. Lessons on the construction and handling of the weapons, including explosives.	
2. Practical Instruction.	
(a) The Bayonet—Bayonet Training to include the Assault Course.	
(b) Automatic Rifle—Mechanics (stripping, assembling, functioning). Immediate action. Marksmanship to include instruction up to range practice.	
(c) Hand and Rifle Grenades—Individual instruction with dummy and in improved grenades.	
III. MUSKETRY .....	20
1. Theoretical Instruction.	
(a) Weapons of the Infantry Squad, Theory of Fire.	
(b) Range estimation. Target Designation. Fire Distribution.	
(c) Fire Discipline (use of cover, individual movements, transmission of firing data, signals, replacements of casualties, individual conduct, etc.)	
(d) Fire Control (application, observation, and adjustment of fire.)	
(e) Control of movement (rushes and infiltration, squad and section).	
(f) Conduct of fire in the attack. Duties of leaders to include the section.	
(g) Conduct of fire in defense. Duties of leaders to include the section.	
(h) Combat practice. Use of landscape targets, preparation, and methods of conducting and criticising practical exercises.	
2. Practical Instruction.	
(a) Exercises, demonstrations and tests, using sand table, landscape target, and terrain.	
IV. SCOUTING AND PATROLLING.....	10
V. COMMAND AND LEADERSHIP.....	31
1. Practical Instruction and Experience.	
(a) Students in the second year of the Basic Course will be given the greatest practicable opportunity to exercise the function of command ap-	

## SCHEDULE: ADVANCED COURSE

83

## V. COMMAND AND LEADERSHIP—Continued.

1. Practical Instruction and Experience—Continued.  
appropriate to Non-Commissioned officers and to acquire practical experience in leadership.

The individual student will be given definite assignments to duties in connection with the instruction and training of students in the first year of the Basic Course which will, in the course of a year, demonstrate the aptitude of individual students.

## VI. MILITARY HYGIENE, SANITATION, AND FIRST AID..... 6

## 1. Theoretical Instruction.

- (a) Personal Hygiene.
- (b) Foods, their preparation. Hygiene of the kitchen, barracks, and camp.
- (c) Selection and protection of drinking water.
- (d) Hygiene of moving troops.
- (e) The causes of diseases. The prevention and control of epidemics. The prevention of mental and nervous diseases.
- (f) Sanitation of localities, selection, and drainage of camp sites.
- (g) Disposal of refuse.
- (h) First Aid to the Injured. Resuscitation.
- (i) So much as is necessary for an intelligent understanding of the fundamental importance of physical, mental, and moral soundness in the soldier. Physical requirements for Military Service.
- (j) Comparative statistics of American citizens for Military Service in the World War.

## 2. Practical Instruction.

- (a) Sand table demonstrations and problems in camp sanitation.
- (b) Construction of miniature models of sanitary appliances, camp sites, expedients, etc.
- (c) Demonstrations and exercises in First Aid to the Injured.

## THE ADVANCED COURSE

## FIRST YEAR

Number of weeks per academic year.....	30
Total available academic hours (5 hours per week).....	150
Number of class-room periods for recitation on prepared subjects....	90
Number of periods for practical instruction.....	60

(NOTE.—The sequence in which the following subjects are listed is not intended to indicate the order in which they will be taught.)

## THE UNIVERSITY

## SUBJECTS AND SCOPE

	Units
I. FIELD ENGINEERING.....	22
1. Theoretical Instruction.	
(a) Elements of Field Engineering. Instructions to include the principles and methods of Field Engineering in the various types of trenches, obstacles, shelters, machine gun emplacements, observation posts, etc. Organization of working parties and tasks. Selection and location for works of defense. Concealment and camouflage.	
2. Practical Instruction.	
(a) Solution of Military Engineering problems based on 1 (a) above. Demonstrations on sand table. Construction on sand table, miniature models of types of trenches, obstacles, and other defensive works. Reconnaissance, location, and laying out of works on the ground. (If practicable a trench system will be constructed. Each class from year to year enlarging, improving, and repairing the initial works.)	
II. ACCOMPANYING WEAPONS.....	9
1. Theoretical Instruction.	
(a) The Machine Gun—Development of the machine gun. The theory of fire. Targets and Ranges. Direct, indirect, and over-head fire, and night firing.	
(b) The 37 mm. Gun (1 pounder)—History of the Weapon. Direct, indirect, and over-head fire. Observation and adjustment of fire.	
(c) The Light Mortar—History of the weapon. Laying the mortar. Kinds of fire. Observation and adjustment of fire.	
2. Practical Instruction.	
(a) The Machine Gun—Nomenclature, use, care, and repair of machine guns and accessories. Mechanics (stripping, assembling, functioning). Immediate action. Exercises and demonstrations in direct and indirect fire <i>if practicable</i> . Use of instruments. Determination of ranges. Recognition and designation of service targets.	
(b) The 37 mm. Gun (1 pounder)—Mechanics (stripping, assembling, functioning). Construction, care, and operation of the gun. Types of ammunition. School of the 1—Pounder Section. Exercises and demonstrations in direct and indirect fire <i>if practicable</i> .	
(c) The Light Mortar—Construction, care, and operation of the gun. Mechanics [stripping,	

## SCHEDULE: ADVANCED COURSE

85

II. ACCOMPANYING WEAPONS—Continued.	Units
2. Practical Instruction—Continued.	
assembling, functioning of the gun. Assembling and functioning of bombs]. Light mortar and emplacements. School of the Mortar Section.	
III. MILITARY LAW AND RULES OF LAND WARFARE.....	2
IV. CHEMICAL WARFARE.....	5
This will consist of lectures and demonstrations on the uses of gases, gas masks, and gas weapons by the Army Chemical Warfare Service, U. S. Army.	
V. SERVICE OF SECURITY ON THE MARCH AND AT REST.....	24
This course covering a review of Scouting and Patrolling deals with the security of troops (a) ON THE MARCH and (b) AT REST. The former treats of advance guard, rear guard, and flank protection of troops in motion. The latter deals with protection of troops by outpost, march outpost, section as a picket and as a detached post.	
VI. MAP READING (Review Course).....	5
VII. COMMAND AND LEADERSHIP.....	48
(See comment under IV-1 (a) in second year of the Basic Course except that instruction will be given appropriate to grades of sergeants and lieutenants.)	

### THE ADVANCED COURSE

#### SECOND YEAR

	Hours
Number of weeks per academic year.....	30
Total available academic hours (5 hours per week).....	150
Number of class-room periods for recitation on prepared subjects....	90
Number of periods for practical instruction.....	60

(NOTE.—The sequence in which the following subjects are listed is not intended to indicate the order in which they will be taught.)

#### SUBJECTS AND SCOPE

I. TACTICS .....	Units 47
1. Theoretical Instruction.	
(a) General view of the organization and conduct of the Battalion and higher units.	
(b) Principles governing the organization, armament, equipment, and conduct of the rifle machine gun, Howitzer, and headquarters companies, in offensive and defensive combat.	
(c) Tactical principles governing the conduct of the platoon and smaller units in offensive and defensive combat. Details of organization, equipment and tactical employment of the rifle company, machine gun, and Howitzer company platoon. Combined action.	

I. TACTICS—Continued.	Units
1. Theoretical Instruction—Continued.	
(d) Principles governing the employment and details of conduct of covering detachments in open and position warfare. (NOTE.—(b) will be treated in a definite and (c) in a detailed manner.)	
2. Practical Instruction.	
(a) Demonstrations, exercises, and problems on sand table, map, and terrain in subjects covered in (b), (c), and (d) above.	
II. MILITARY HISTORY .....	5
1. Facts on American Military History including the World War as to:	
(a) The sources of authority for our military estab- lishment.	
(b) The development of the military resources and the military strength of the United States.	
(c) The state of national preparedness for war at critical periods in the history of the United States.	
(d) The cost of American wars in relation to na- tional unpreparedness.	
2. Lessons from American Military History as to:	
(a) The traditional military policy of the United States.	
(b) The need for national organization for the Mili- tary defense of the nation.	
III. TENT PITCHING AND PACKS.....	1
IV. CHEMICAL WARFARE .....	5
This will consist of lectures and demonstrations on the uses of gases, gas masks, and gas weapons by the Army Chem- ical Warfare Service, U. S. Army.	
V. ADMINISTRATION .....	6
1. Lectures on the practical administration of a company including the interior economy and the management of the soldier.	
2. Practical work in the preparation of papers pertaining to the administration of a company. So much as a lieutenant should know concerning military correspondence, preparation, and application of blank forms, use and disposition of orders, bulletins, and circulars.	
VI. COMMAND AND LEADERSHIP.....	56
1. Practical Instruction and Experience.	
(See comment under IV, 1 (a) in the second year of the Basic Course except that instruction will be given appropriate to the grades of sergeants and lieutenants.)	

# **Department of Physical Education**

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## **PURPOSES OF THE DEPARTMENT**

1. The development and maintenance of a strong and powerful vitality which is essential to mental and physical efficiency.
2. The development of healthful habits of exercise through hygienic, educative, and recreative physical activities.
3. To secure a harmonious and symmetrical development of the body and to acquire a certain degree of physical proficiency, skill and bodily grace.
4. To provide a program of daily physical recreation, to counterbalance the demands of sedentary university life.
5. To look after the physical welfare of the sound normal student as well as that of the ill or the subnormal.
6. To qualify men and women for expert service in conducting physical activities on the playgrounds, in schools, in colleges, and in community centers.

## **EQUIPMENT**

The gymnasium has a floor space of approximately 4,120 square feet. It has a regulation size basketball court and is equipped with modern gymnastic apparatus.

*Lockers*.—Underneath the grandstand adjoining the gymnasium are dressing room and lockers for men provided with toilet and bathing facilities. Towels are issued to students. A building which provides dressing rooms, lockers, and bathing facilities for women students is now constructed, and ready for use.

*Athletic field*.—Athletic fields are provided for intercollegiate and intramural baseball, soccer football, tennis, basketball, and track and field contests.

## **REQUIREMENTS**

Medical examination is required of all students, both men and women, prior to registration in the University. Physical examination is required of all students who enter the University for the first time.

## **REQUIREMENTS FOR MEN**

During the first four years residence in the University, each male student is required to take one hour per week of physical work.

*Uniforms*.—The following regular gymnasium suit must be worn: Maroon athletic shirt, white running pants, white rubber-soled tennis shoes.

*PHYSICAL EDUCATION 1 (Hygiene)*.—Personal hygiene—An elementary course emphasizing the importance of right living. Required of

all new students. Lectures, collateral reading, conferences. A written examination is required. Lecture one hour, Freshman year, first and second semester.

**PHYSICAL EDUCATION 2.**—Progressive mass Free Hand Gymnastics. Beginners' lessons in wrestling and boxing. Games and outdoor sports.

One hour a week, first and second semester.

**PHYSICAL EDUCATION 3.**—Progressive mass free hand gymnastics, and light apparatus. Progressive lessons in boxing and wrestling. Games and outdoor sports. One hour a week, first and second semester.

**PHYSICAL EDUCATION 4.**—Progressive gymnastics—Light apparatus, graded heavy apparatus work consisting of simple exercise on horizontal bar, buck, parallel bars, horse, rings, and mats. Games and sports.

One hour a week, first and second semester.

**COMPETITIVE ATHLETICS.**—Instruction and supervision will be given in the following sports to candidates of the Intercollegiate and Intramural teams:

Baseball	Track and Field	Tennis
Soccer Football	Basketball	Swimming
Wrestling	Boxing	Gymnastics

Any of the foregoing competitive sports may be substituted for class work, provided that the attendance is at least three times a week.

#### REQUIREMENTS FOR WOMEN

All women students in the university, unless excused for some good reason, are required to take one hour of physical work per week during their first four years' residence in the university.

**Uniforms.**—The required uniforms consist of full black bloomers, plain white middy blouse with white collar, black tie, white stockings, and white rubber-soled tennis shoes.

**PHYSICAL EDUCATION 11 (Hygiene 11).**—A practical course of lectures and conferences on personal and social hygiene is given by women physicians. Attendance of freshmen is required. Written examination at the end of each semester.

One hour a week, first and second semester.

**PHYSICAL EDUCATION 12.**—Elementary gymnastics. Marching, folk dancing, games, outdoor sports.

One hour a week, first and second semester.

**PHYSICAL EDUCATION 13.**—Progressive mass gymnastics (Free hand and light apparatus.) Elementary dancing technique to insure co-ordination and poise. Outdoor sports.

One hour a week, first and second semester.

**PHYSICAL EDUCATION 14.**—Advanced gymnastics. Elementary exercises on gymnastic apparatus, such as ladders, ropes, rings, vaulting box, horse, and buck. Philippine country folk dances, elementary aesthetic and classical dances. Outdoor games and sports.

One hour a week, first and second semester.

Intramural contests under the supervision and control of the Department are conducted in the following sports:

Basketball  
Volleyball  
Newcomb

Indoor baseball  
Hockey

Tennis  
Gymnastics

Participation in any of these branches of competitive sports may be substituted for the required work in Physical Education.

**PHYSICAL EDUCATION 21.**—Corrective gymnastics: Special corrective exercise is prescribed to men and women who after thorough medical and physical examinations are found to have remediable physical defects. This course may be substituted for any or the preceding requirements. Eight semesters of credit must be secured in Physical Education by the satisfactory completion of the course. These credits are determined on the basis of attendance and effort and the attainments of certain standards of growth and development, physical efficiency, and knowledge of the rules, principles, and the practice of right living.

Unexcused absences from required physical work for men and women must be made up double in class within two weeks to the satisfaction of the Department of Physical Education.

The following courses are given by the department to students who desire to take physical education as their major course. (See Physical Education major under College of Education.)

**PHYSICAL EDUCATION 51 (History of Physical Education).**—The course aims to familiarize the students with the literature bearing on the history of physical education including the nature, influence, and progress of physical training during its various stages of development. Lectures and assigned collateral readings.

3 hours a week, first semester; credit 3 units.

**PHYSICAL EDUCATION 52 (Play and Playgrounds).**—The course includes the history of the playground movements, the philosophy of play, and the organization, promotion, operation, and administration of school and municipal playgrounds. Lectures.

3 hours a week, second semester; credit 3 units.

**PHYSICAL EDUCATION 53 (Physiology).**—The course is selected for students who expect to become teachers of physical education. It forms the foundation work of the course in physiology of exercise and personal hygiene. Lectures and assigned collateral readings.

3 hours a week, first semester; credit 3 units.

**PHYSICAL EDUCATION 54 (Anatomy).**—A study of the gross anatomy of the human body. This is necessary in order to have a thorough understanding of the mechanical problems in gymnastics and athletics. Lectures and demonstrations.

3 hours a week, second semester; credit 3 units.

**PHYSICAL EDUCATION 55 (Gymnasium Work 1).**—Practical work in graduated exercise, progressive and corrective gymnastics including heavy apparatus and elementary normal dancing.

3 hours a week, first semester; credit 1 unit.

**PHYSICAL EDUCATION 56 (Hygiene).**—This course includes a thorough review of school, civic, and personal hygiene. It aims to familiarize the students with health problems and proper rules of living. Lectures and collateral readings.

3 hours a week, first semester; credit 3 units.

**PHYSICAL EDUCATION 57 (Field Practice).**—A practical training in major sports as well as in games of lower organization. The students must acquire a certain degree of proficiency in these games. They must also possess a working knowledge of the rules governing these activities.

3 hours a week, second semester; credit 1 unit.

**PHYSICAL EDUCATION 58 (Physiology of Exercise).**—This is practically a continuation of the course in physiology. It is intended to familiarize the students with the various forms of physical exercise and their effects on the various important organs of the body. Lectures.

3 hours a week, second semester; credit 3 units.

**PHYSICAL EDUCATION 59 (Anthropometry).**—A study of the statistical and diagnostic value of physical measurements, construction of anthropometrical tables, and the comparative study of growth and development. Lectures and demonstration.

3 hours a week, first semester; credit 3 units.

**PHYSICAL EDUCATION 60 (Administration in Physical Education).**—The course covers a detailed study of the administrative problems of physical education including intramural, interschool, or intercollegiate athletics, schedule and contract making, financial administration, purchase and care of equipment, scholastic and athletic eligibility, care of gymnasium, swimming pool, athletic fields, and tennis courts; insignia and awards, and management of home games and trips of athletic teams, etc. Lectures.

3 hours a week, second semester; credit 3 units.

#### CONSULTATION AND EMERGENCY SERVICE

The office of the Department in Manila is open to all students for two hours every day for medical consultation and advice. This service is free. Treatment is provided to students who cannot afford to pay a physician. Emergency and first aid services are available at all times.

The Office of the College Physician for the Associated Colleges in Los Baños takes care of the emergency cases, as well as the dispensary clinic, and the outside patient service. During registration weeks the college physician conducts the medical examinations required of students prior to enrollment.

## The College of Liberal Arts

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### ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA (Tel. 1238)

*Dean of the College:* (Local 26) Professor MAXIMO M. KALAW

*Secretary of the College:* (Local 23) Professor SERAFIN E. MACARAIG

*Heads of Departments* (With telephone numbers of offices)—

*Anthropology and Sociology* (Local 16) Professor H. O. BEYER

*Botany* (Local 25) : Professor JOSE K. SANTOS (Acting)

*Chemistry* (Local 30) : Professor A. P. WEST

*Economics and Business Administration* (Local 27) : Professor MAXIMO M. KALAW (Acting)

*English* (Local 1) : Professor HAROLD P. SCOTT

*Geology* (Including Geography) (Local 32) : DR. JOSE M. FELICIANO (Acting)

*History* (Local 13) : Professor LEANDRO H. FERNANDEZ (Acting)

*Mathematics* (Local 8) : Professor VIDAL A. TAN

*Oriental Languages* (Local 17) : Professor OTTO J. SCHEERER

*Physics* (Local 10) : Professor GEORGE B. OBEAR

*Political Science* (Local 7) : Dean MAXIMO M. KALAW

*Spanish* (Local 34) : Professor JAYME C. DE VEYRA

*Zoölogy* (Local 24) : Professor P. B. SIVICKIS

*In charge of sections* (With telephone numbers of offices)—

*French* (Local 19) : Professor A. B. DE LA CANTERA

*German* (Local 17) : Professor EMILIO NATIVIDAD

*Library Science* (Local 15) ; Professor GABRIEL A. BERNARDO

### CHIEF CLERKS

*Chief Clerk* (Local 14) : Mr. TOMAS S. FONACIER

*Property Clerk* (Local 14) : Mr. LUCIANO FERNANDEZ

### CHAIRMEN OF STANDING COMMITTEES

*Graduate Study*: Dean MAXIMO M. KALAW (Local 26)

*Scholarship*: Professor NICOLAS ZAFRA (Local 13)

*Curriculum*: Professor AMANDO CLEMENTE (Local 30)

*Application for Degrees and Titles*: Professor SERAFIN E. MACARAIG (Local 23)

*Students' Advisory*: Professor CARLOS P. ROMULO (Local 1)

*Athletics*: Professor CRISTINO JAMIAS (Local 18)

### BUSINESS DIRECTORY

*Office of the Dean*.—The office of the Dean is located in Room 5 on the first floor of Rizal Hall on Padre Faura.

*Telephone Connection.*—The Dean's Office may be reached from outside by Tel. 2569 after regular office hours. It also has telephone No. 14 on the local exchange.

The Departments are on the local exchange and may be reached only during these hours: from 8 a. m. to 12 noon and from 1 to 8 p. m. From outside call Tel. 2566 (the University number) and ask for department wanted or give local number shown above.

*Correspondence.*—Address all correspondence to the Dean, College of Liberal Arts, University of the Philippines, Manila, P. I.

#### STANDING COMMITTEES OF THE COLLEGE OF LIBERAL ARTS

##### *College Graduate Committee*

Dean Maximo M. Kalaw, Chairman  
 Dr. H. P. Scott, Member  
 Dr. Jose K. Santos, Member  
 Dr. F. B. Sivickis, Member  
 Dr. L. Fernandez, Member  
 Prof. Otto J. Scheerer, Member

##### *Scholarship Committee*

Prof. Nicolas Zafra, Chairman  
 Dr. Jose S. Reyes, Member  
 Prof. Emilio Natividad, Member  
 Prof. Vicente Hilario, Member  
 Prof. Serafin E. Macaraig, Member  
 Mr. Pedro A. Santiago, Member

##### *College Curriculum Committee*

Dr. Amando Clemente, Chairman  
 Prof. Serafin E. Macaraig, Member  
 Dr. Joaquin Marafion, Member  
 Prof. Au-yeung Sek Lim, Member

##### *Committee on Degrees and Titles*

Prof. Serafin E. Macaraig, Chairman  
 Mr. Quirino Austria, Member  
 Mr. Francisco Perez, Member

##### *Students Advisory Committee*

Prof. Carlos P. Romulo, Chairman  
 Dr. Joaquin Marafion, Member  
 Advisers of different classes, Members

##### *College Athletics Committee*

Prof. Cristino Jamias, Chairman  
 Prof. Emilio Natividad, Member  
 Prof. Nicolas Zafra, Member  
 Dr. Simeon Alejandro, Member

##### *Entrance Examiner*

Prof. Serafin E. Macaraig.

## **THE COLLEGE OF LIBERAL ARTS**

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### **GENERAL INFORMATION**

#### **HISTORY**

The College of Liberal Arts was established on June 3, 1910, offering only undergraduate courses. On January 30, 1911, graduate work was begun. Four-year courses are now offered leading to the Bachelor's degree and an additional year of graduate work leads to the degrees of Master of Arts or Master of Science.

#### **RELATION TO OTHER COLLEGES**

The College of Liberal Arts is not only a separate entity in itself but a service college for other colleges. Many of its departments are doing work for the other schools and colleges. A great part of its faculty belong also to the faculty of the other schools and colleges. Students enrolled in the College of Liberal Arts but desiring to take extra subjects in any other college, like the College of Education or the School of Pharmacy, can do so. While freshmen in the College of Liberal Arts they may be also allowed to take one or two subjects in any of the foregoing schools and colleges and after the first year they may, if they want to, transfer to these schools.

#### **DIVISION OF THE COLLEGE**

The College of Liberal Arts has three main division: (1) The Junior College, (2) the Senior College, and (3) the Graduate Division. The work of the Junior College comprises the studies of the first and second years; the work of the Senior College, the studies of the third and fourth years; and the Graduate Division, the advanced studies that may thereafter be taken.

#### **DEPARTMENTS AND SECTIONS**

For purposes of instruction, the College is divided into departments and sections. A department is an independent unit of instruction that operates under the direct control of the Head of the Department; a section is a smaller unit of instruction that operates under the control of the Dean. Usually the ranking member of the section faculty is in charge of the section.

#### **COURSES OF INSTRUCTION**

The College of Liberal Arts offers three distinct kinds of undergraduate courses, namely: (a) The two-year preparatory courses in law and medicine, (b) the four-year vocational courses in commerce, chemistry, and library science, and (c) the four-year cultural courses in general arts and sciences. Students intending to continue their courses in the College of Education should take the general cultural course. It also offers to qualified students unusual opportunities for graduate work.

**GRADUATE STUDY**

Graduate students may register in the University and pursue their studies under the direction of a committee on graduate study of the college in which the major work is to be taken and of a Committee on Graduate Studies of the University Council.

Such students shall be classified as "regular" (prospective candidates for Masters' degree) and "special" (not prospective candidates for the degree).

Persons of good moral character who hold baccalaureate or other degrees involving not less than four years of undergraduate work in this University, or equivalent degrees from other colleges or universities acceptable to the University and persons who present evidence of having taken courses equivalent to those required for an acceptable degree, shall be eligible for acceptance as graduate students, provided they can present evidence of a reading knowledge of French or German. Spanish may be substituted in the case of students majoring in any of the social science departments of the College of Liberal Arts, and Chinese or Japanese in the case of students majoring in subjects, the references for which are written in Chinese or Japanese.

For general provisions regarding graduate study, see pages 60-68.

**ADMISSION OF STUDENTS**

Students will be admitted to the College of Liberal Arts:

1. By certificate from an accredited secondary school;
2. By examination;
3. By transfer from another college or university of recognized standing.

1. *Admission from an accredited school.*—For general provisions regarding this method of admission, see page 45.

Graduates from high schools, public or private, in the accredited list of the University must present:

The application for admission (U. P. Form No. 3) of such students accompanied by a list of the secondary school subjects completed (U. P. Form No. 1) with the grades received, indorsed by the principal of the school. It must also be accompanied by specific information regarding the nature of, and the method of instruction used in, the courses completed.

The application, certificates or diploma, laboratory note-books, (see page 45) and all other credentials should be at the hands of the University Registrar at least two weeks before the beginning of the semester.

The status of every undergraduate student is probationary during the first year of residence in the College of Liberal Arts and failure to do satisfactory work will be sufficient cause for suspension or permanent exclusion.

The University of the Philippines is not obliged in advance to continue to accept the certificate from any public high school or private secondary school. The previous acceptance of such certificates or diplomas does not establish a permanent right to such acceptance.

In addition to the above requirements, the College of Liberal Arts requires all entering students to take an intelligence test and an entrance examination in English and Mathematics. These examinations are given one week before registration.

2. *Admission by examination.*—Detailed information regarding this method of admission, as well as the subject matter for the entrance examinations, is given on pages 46–50.

3. *Admission by transfer from other college or university.*—Information regarding this method of admission is given on page 50.

Students, taking the six-year course of the College of Agriculture, University of the Philippines, who may wish to transfer to the College of Liberal Arts, may be allowed to do so only after they have been in residence at least four academic years in the College of Agriculture and have successfully completed the first four years of the six-year course.

#### **ADMISSION OF SPECIAL AND FOREIGN STUDENTS**

For detailed information regarding the admission of special and foreign students, see pages 50–51.

#### **ADMISSION TO ADVANCED STANDING**

Detailed information regarding admission to advanced standing is given on page 51.

#### **ENTRANCE REQUIREMENTS**

I. Fifteen units are required for entrance to the College of Liberal Arts. Nine of these units are prescribed for admission to the first-year class in all undergraduate courses and no substitutes are accepted.

##### *List A*

History and economics.....	1
English .....	5
Mathematics .....	2
Science with laboratory work.....	1
 Total .....	 9

II. Of the units remaining, certain kinds are prescribed for admission to the several courses as follows:

To Preparatory Law (Spanish).....	2
To Preparatory Medicine (Science).....	1
To the Commerce Course (A Modern Language).....	2
To the Course in Library Science (Literature).....	1
To the General Culture Courses (Laboratory Science)..	1

III. In addition, enough units must be selected from List B to make up the total required number of 15 units. One unit may be selected from List C in substitution for one unit from List B.

##### *List B*

Latin, Greek, French, German, Spanish, Italian, Japanese, Chinese, English, advanced algebra, plane geometry, solid geometry, trigonometry, history, civics, economics, commercial and physical geography, botany and zoölogy, physics and chemistry.

##### *List C*

Agriculture, bookkeeping, business law, domestic science, drawing, manual training, music.

*Summary of the Entrance Requirements by Courses*

For Admission To—	Required Number of Units of Preparatory work				
	From List A	From List B	List B or C	Special Prescription	Total
Preparatory Law.....	9	3	1	Spanish..... 2	15
Preparatory Medicine.....	9	4	1	Science..... 1	15
Commerce Course.....	9	3	1	Modern Language..... 2	15
Course in Library Science.....	9	4	1	Literature..... 1	15
General Culture Courses.....	9	4	1	Laboratory Science..... 1	15

**ENTRANCE DEFICIENCY**

Detailed information regarding entrance deficiency is given on page 50.

**HOW TO REGISTER**

Students can secure copies of "Schedule of Classes and Information for Registration" from the dean's office.

**MAXIMUM AND MINIMUM NUMBER OF UNITS TO BE TAKEN**

In addition to the regulations described on page 52, the College of Liberal Arts also observes the following rules regarding registration:

(a) Regular students must carry a minimum of fifteen units of non-laboratory work or seventeen units with laboratory, per semester, unless the Dean shall otherwise determine: *Provided*, That students, who are registering for the final semester, will not be obliged to carry a greater number of units of work than necessary for graduation.

(b) No student will be allowed to register for more than twenty-one non-laboratory units or twenty-four units including laboratory work during each semester, or nine non-laboratory units during each summer; one and one-half of these units to be given each semester to the first two years of the course in military science and tactics; *Provided*, That this rule shall not affect or alter any course approved by the University Council and the Board of Regents in which more than twenty-one units are offered in each semester.

(c) Working students will not be allowed to register in more than 15 units of non-laboratory work or 18 units with laboratory work.

**CHANGE OF LIST OF COURSES**

A student may make changes in his list of courses only during the first two weeks of instruction, with the approval of his adviser and the Dean and upon payment of a fee of \$5.

After the end of the second week of the semester, no dropping of courses will be allowed except in very extraordinary cases to be decided by the Dean and upon payment of a fee of \$5. Upon the recommendation of the instructor, a final grade of 5 will be given such student on the ground of unsatisfactory work.

Students dropping any course without the consent of the Dean shall be considered as having taken the course and failed and shall be given a final grade of 5.

Registration in additional courses is not allowed after the first two weeks of the semester.

### CHANGE OF COURSE OF STUDY

Students may transfer to another course of study only during the first two weeks of the semester with the approval of the Dean and upon payment of a fee of \$5.

### EXCLUSION OF STUDENTS

Any student who fails to satisfy his instructor in his work at any time shall be reported to the Dean for dismissal from the course with a grade of "5" unless the faculty shall otherwise decide.

Any instructor may also drop from the class any student who violates the rules of absences (see page 56).

### DISCIPLINE

Students of the College are expected to conduct themselves properly and with due decorum within and without the University halls. All breaches of discipline shall be reported to the Dean who will immediately take the necessary steps for the correction of the offense. In grave cases that may lead to the suspension or expulsion of the guilty party the faculty of the College shall be consulted, as well as the Executive Committee of the University Council.

### GRADES OF SCHOLARSHIP AND CONDITIONS AND FAILURES

Detailed information regarding grades of scholarship and conditions and failures is given on page 52.

Moreover, the following regulations governing scholarship are enforced in the College of Liberal Arts:

(1) These rules shall operate automatically. Students coming under their action may, in special cases, appeal within a restricted time to the Committee on Scholarship. This Committee is entrusted by the Faculty of the College of Liberal Arts with the power to decide any special case by making allowance for extraordinary circumstances.

(2) **DELINQUENCY.**—Any student whose mid-semester or semester grades include:

One or more Fives, or two or more Fours shall be considered delinquent and shall be subject to the penalties provided hereinafter.

(3) **NOTIFICATION OF DELINQUENCY.**—Such student shall be notified by printed card, as hereinafter specified, of the degree of his delinquency, the period within which he must show improvement, and the penalties involved, as hereinafter detailed.

(4) **WARNING.**—Any student whose mid-semester or semester grades include:

One Five, or two Fours, or one Five and one Four shall be warned by yellow card.

(5) **FOURTH WARNING FOLLOWED BY LIMITATION OF REGISTRATION.**—

Any student warned four successive times by yellow card whose next semester report makes him liable to a fifth warning shall not be allowed to register for the semester following, or for an intervening summer session, in any subject except those in which he has a Four or a Five and he shall be notified thereof by brown card: *Provided*, That if the

fourth warning comes at the end of a semester and the next mid-semester grades do not make him liable to a warning, he shall be clear.

(6) **PROBATION.** (a) *Ordinary probation.*—Any student whose mid-semester or semester grades include:

Three or more Fours, or two Fives, or two Fives and one Four, or one Five and two or three Fours, shall be put on probation and be notified by gray card.

(b) *Extreme delinquency at mid-semester.*—Any student whose mid-semester or semester grades include:

Three or more Fives, or two Fives and two or more Fours, or one Five and four or more Fours shall be put on probation and notified thereof by gray card. (See section 9.)

(c) *Probation period.*—The probation period for any student shall extend until the semester-end next following.

(7) **PENALTIES FOLLOWING FIRST PROBATION.**—For second probation, see section (11).

(a) *Suspension.*—Students on probation for the first time whose probation period extends to the end of the first semester and whose delinquency at that time exceeds one Five and one Four shall be suspended for the second semester and shall be notified thereof by blue card.

(b) *Limitation of registration.*—Any student on probation for the first time whose

## THE COLLEGE OF LIBERAL ARTS

probation period extends to the end of the second semester and whose delinquency at that time exceeds one Five and one Four, shall not be allowed to register either for the summer session or for the semester following in any subjects except those in which he has a Four or a Five and he shall be notified thereof by brown card.

(8) Probation not followed by any penalty shall count as a warning.

(9) **EXTREME DELINQUENCY.**—Any student whose semester grades include:

Three or more Fives, or two Fives and two or more Fours, or one Five and four or more Fours, shall be immediately suspended for one semester and notified thereof by blue card.

(10) **STUDENTS TAKING VOLUNTARILY LESS THAN FIFTEEN UNITS OF NON-LABORATORY WORK OR LESS THAN SEVENTEEN UNITS WITH LABORATORY.**—Any student taking less than fifteen units of non-laboratory work or less than seventeen units with laboratory, except as a penalty under these rules, shall, upon receiving first semester grades, which include:

One or more Fives or two or more Fours, be suspended for the second semester and notified thereof by blue card.

Any such student receiving such grades at the end of the second semester shall not be

allowed to register either for the summer session or for the semester following in any subject except those in which he has a Four or a Five and he shall be notified thereof by brown card.

(11) **DISMISSAL.**—Any student who has once incurred the penalty of suspension, or of limitation of registration, and who again incurs either of these penalties shall be dismissed from the College and shall be notified thereof by red card.

Such student shall have the privilege of re-examination within six months in those subjects in which he has incurred a Four and on presenting proof of study under an acceptable private tutor in those subjects in which he has a Five.

Failure or condition in any such re-examination shall result in permanent dismissal from the College of Liberal Arts.

(12) **SUMMER SESSION GRADES.**—Grades of Four or Five incurred during the summer session shall be considered with the next mid-semester grades.

(13) **NOTICE TO PARENTS OR GUARDIAN.**—In any of the cases of delinquency for which a card has been provided in the foregoing sections a duplicate of such card shall be remitted by way of information to the parents or guardian of the students concerned.

### RULES ON ATTENDANCE

For general information regarding rules on attendance at required University and College exercises, see page 56.

In addition to the general rules, the following are enforced in the College of Liberal Arts.

### PENALTIES FOR EXCESSIVE ABSENCES

1. A student whose number of absences for one semester exceeds 15 per cent of the recitation or lecture hours in any one subject for that semester will have his final semestral grade reduced by ONE point by the instructor, except as provided in rule 2.

2. No reduction of grade shall be made under rule 1 if the majority of absences be excused absences, when owing to the nature of the work, the instructor is of the opinion that the student has made up for his absences.

3. A student whose number of absences for one semester exceeds 20 per cent of the recitation or lecture hours in any one subject for that semester will be dropped automatically from the class roll and given a grade

of "5" by the instructor, except as provided in rule 4.

4. No grade shall be given under rule 3 should the majority of absences be excused absences, nor in this case shall the student be dropped, if in the opinion of the instructor approved by the head of the department, he can make up for his absences. Furthermore, the penalty shall not be imposed if the majority of absences be excused and if the majority shall have occurred toward the end of the semester, provided the student's grades shall have averaged "1" or nearer "1" than "3". This section shall not be interpreted to excuse a student from final examination.

### MEDICAL EXAMINATION

All students of the College are required to undergo a medical examination before they can register. This examination, for which no fee is charged, is a prerequisite to registration.

### MEDICAL ATTENDANCE

The Philippine General Hospital grounds adjoin the Campus of the University. Students of the University may there receive emergency

attendance free, and will be admitted for treatment in cases of illness at the usual rates.

#### GRADUATION WITH HONORS

*Associate title.*—The title of Associate in Arts "with marked distinction" will be granted to students of the College of Liberal Arts who obtain a grade of 1 in not less than 90 per cent of all subjects in their course and a grade of 2 in all other subjects; the title of Associate in Arts "with distinction," to students who obtain a grade of 1 in not less than 80 per cent of all subjects in their course and a grade of 2 in all other subjects; provided that such students have earned in the University of the Philippines all the credits required for graduation.

*Bachelor's degree.*—The Bachelor's degree *summa cum laude* will be conferred on students of the College of Liberal Arts who obtain a grade of 1 in not less than 75 per cent of all subjects taken during their residence in the College and a grade of 2 in all other subjects; the Bachelor's degree "*cum laude*," on students who obtain a grade of 2 or better in all subjects taken; provided that such students have earned in the University of the Philippines all the credits submitted for graduation.

#### MILITARY SCIENCE AND PHYSICAL TRAINING

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

#### RESIDENCE REQUIREMENT

No title or degree shall be conferred on any student who has not been in residence in the College of Liberal Arts for at least two consecutive semesters immediately prior to receiving the degree or title.

#### EXPENSES

*Tuition fees.*—A tuition fee of ₱25 a semester is charged in the Junior College and ₱40 a semester in the Senior College.

Graduate students taking 5 units or less pay ₱15 a semester, those taking more than 5 units and not more than 10, ₱30 a semester; those taking more than 10 units, ₱40 a semester.

A fee of ₱2.50 a unit of credit is charged during the summer session.

*Laboratory fees.*—A fee of ₱5 a semester is charged in all laboratory or technical subjects giving 5 units of credit for a semester, except Chemistry in which a fee of ₱15 is charged, and ₱10 a semester in those giving more than 5 units of credit for a semester.

*Deposits.*—Every student will be required to pay a deposit of ₱15 in addition to the regular fees. This deposit is for the purpose of covering any losses of apparatus, supplies, books, and the like, or any damage to University property which may be made chargeable to the student.

*Delayed registration fee.*—A fee of ₱5 is charged for delayed registration, and a similar amount for any change of registration in given courses or curriculum. (See page 55.)

*Library fee.*—Every student pays a library fee of ₱2.50 a year.

*Athletic fee.*—Every student pays an athletic fee of ₱1.50 a semester.

*Special examination.*—A fee of ₱10 a course is charged for any examination for the removal of a condition at a time other than that allowed by University regulations.

*Diplomas and certificates.*—A fee of ₱10 is charged for diplomas and ₱5 for certificates.

*Subscription to the Philippine Collegian.*—Every student has to pay ₱1 a semester for the support of this students' paper.

*Miscellaneous fees.*—Every student has to pay 50 centavos a semester to finance authorized students activities. This fund will be in charge of the University Students' Council.

#### BOOKS

Expenses for books vary from ₱20 to ₱50 a semester.

#### BOARD AND LODGING

The cost of living in Manila varies from ₱30 to ₱60 a month, but much depends on the personal tastes of the students.

#### TITLES AND DEGREES

In general, students who have successfully completed any of the courses mentioned below will be granted the respective titles or degrees. The title of Associate in Arts will be granted upon completion of the two-year preparatory courses for law and medicine, or upon completion of the first two-year's work in the vocational or cultural courses. The degrees of Bachelor of Science in Commerce, in Chemistry, and Bachelor of Philosophy in Library Science will be conferred upon completion of the four-year vocational courses in commerce, chemistry, and library science, respectively. Upon successful completion of a four-year cultural course, the degrees of Bachelor of Arts, of Philosophy, or of Science may be conferred. The degrees of Master of Arts and Master of Science may also be conferred on graduate students who have successfully completed the prescribed work under the supervision of the Committee on Graduate Studies.

#### LIBRARIES

(For detailed information regarding libraries, see pages 69-74.)

#### THE PREPARATORY COURSES

For the purpose of preparing students for the Colleges of Law and Medicine, the College of Liberal Arts offers two preparatory curricula known as Preparatory Law and Preparatory Medicine. Students who intend to continue their courses in the College of Education should enroll in the Common First Year of the General Cultural Courses, see pages 105-107.

#### THE TWO-YEAR CURRICULUM IN PREPARATORY LAW

*Leads to the title of Associate in Arts. Required for admission to the College of Law*

##### FIRST YEAR

	<i>First Semester</i>				<i>Second Semester</i>	
	Hours	Units			Hours	Units
Engl 1.....	3	3	Engl 1.....		3	3
Span 1.....	3	3	Span 1.....		3	3
Social Sci 1.....	3	3	Social Sci 1.....		3	3
Pol Sc 2.....	3	3	Phil 1.....		3	3
Hist 2.....	3	3	Pol Sc 6.....		3	3
Military Drill.....	(3)	(1½)	Military Drill.....		(3)	(1½)
Physical Training.....	(1)	(1)	Physical Training.....		(1)	(1)
Totals.....	15	15	Totals.....		15	15

## CURRICULUM IN PREPARATORY MEDICINE

101

## SECOND YEAR

## First Semester

	Hours	Units
Engl 8.....	3	3
Span 2.....	3	3
Science.....	3 or 5	
Pol Sc 4.....	3	3
Pol Sc 3.....	3	3
J. H. R.....	1	1
Military Drill.....	(3)	(1½)
Physical Training.....	(1)	(1)
Totals.....	13+	18

## Second Semester

	Hours	Units
Engl 9.....	3	3
Span 2.....	3	3
Science.....	3 or 5	
Hist 5.....	3	3
Pol Sc 5.....	3	3
J. H. R.....	1	1
Military Drill.....	(3)	(1½)
Physical Training.....	(1)	(1)
Totals.....	13+	18

## THE TWO-YEAR CURRICULUM IN PREPARATORY MEDICINE

*Leads to the title of Associate in Arts. Required for admission to the College of Medicine*

## FIRST YEAR

## First Semester

	Hours	Units
Engl 1.....	3	3
Fr 1.....	-----	-----
or Ger 1.....	3	3
Zoöl 1.....	9	5
Chem 23.....	9	5
Math 7.....	3	2
Military Drill.....	(3)	(1½)
Physical Training.....	(1)	(1)
Totals.....	27	18

## Second Semester

	Hours	Units
Engl 1.....	3	3
Fr 1.....	-----	-----
or Ger 1.....	3	3
Bot 1.....	9	5
Chem 23.....	9	5
Math 8.....	4	4
Military Drill.....	(3)	(1½)
Physical Training.....	(1)	(1)
Totals.....	28	20

## SECOND YEAR

## First Semester

	Hours	Units
Fr 2.....	-----	-----
or Ger 2.....	3	3
Chem 26.....	9	5
Chem 27.....	9	5
Phys 2-M.....	6	4
Soc. Sc. 1.....	3	3
Military Drill.....	(3)	(1½)
Physical Training.....	(1)	(1)
Totals.....	30	20

## Second Semester

	Hours	Units
Fr 2.....	-----	-----
or Ger 2.....	3	3
Chem 26.....	9	5
Zoöl 21.....	9	5
Phys 2-M.....	6	4
Soc. Sc. 1.....	3	3
Military Drill.....	(3)	(1½)
Physical Training.....	(1)	(1)
Totals.....	30	20

NOTE.—Premedical students can take History 2 and 5 instead of Social Science I provided they have had the necessary prerequisites.

**THE THIRD YEAR OF A COMBINED LIBERAL ARTS-MEDICINE  
COURSE**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Fren 1 or Ger 1.....	3	3	Fren 1 or Ger 1.....	3	3
Psyc 1.....	3	3	Phil 1.....	3	3
Zoöl 105.....	9	5	Zoöl 106.....	9	5
Chem 29.....	9	5	Chem 28.....	9	5
Soc 1.....	3	3	Soc 102.....	3	3
Elective.....	3	3	Elective.....	3	3
Physical Training.....	(1)	(1)	Physical Training.....	(1)	(1)
<b>Totals.....</b>	<b>30</b>	<b>22</b>	<b>Totals.....</b>	<b>39</b>	<b>22</b>

NOTE.—The completion of this course and the first year of the College of Medicine will entitle the student to obtain the degree of Bachelor of Science in the College of Liberal Arts.

**THE VOCATIONAL COURSES**

The College of Liberal Arts offers three four-year vocational courses; namely, the Course in Commerce, the Course in Library Science, and the Course in Chemistry.

**THE COURSE IN COMMERCE**

The chief aim of the course is to train business executives, including not only men who will engage in independent business but also those who will be needed by the growing demands of the Government service. The need for such men is daily becoming more and more apparent as greater administrative responsibilities are placed in the hands of Filipinos.

For convenience of regularly employed students, commerce subjects are scheduled in the afternoon and evening hours.

**THE FOUR-YEAR CURRICULUM IN COMMERCE**

**FIRST YEAR**

<i>First Semester</i>	Units	<i>Second Semester</i>	Units
Engl 1.....	3	Engl 1.....	3
Span 1.....	3	Span 1.....	3
Science.....	3	Science.....	3
Math 1.....	3	Math 2.....	3
Econ 1.....	3	Acctg 1.....	3
Military Drill.....	(1½)	Military Drill.....	(1½)
Phys Training.....	(1)	Phys Training.....	(1)
<b>Totals.....</b>	<b>15</b>	<b>Totals.....</b>	<b>15</b>

**SECOND YEAR**

*First Semester*

Units

<i>First Semester</i>	Units	<i>Second Semester</i>	Units
Span 2.....	3	Span 2.....	3
Soc Sci 1.....	3	Soc Sci 1.....	3
Acctg 2.....	3	Acctg 3.....	3
Econ 3 or 4.....	3	Econ 2.....	3
Pol Sc 4.....	3	Soc 1.....	3
Elective.....	3	Elective.....	3
Military Drill.....	(1½)	Military Drill.....	(1½)
Phys Training.....	(1)	Phys Training.....	(1)
<b>Totals.....</b>	<b>18</b>	<b>Totals.....</b>	<b>18</b>

# CURRICULUM IN CHEMISTRY

103

## THIRD YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Acctg 10.....	3	Acctg 9.....	3
Bus 7.....	3	Bus 8.....	3
Econ 7.....	3	Econ 6.....	3
Econ 9.....	3	Bank 3.....	3
Soc 102.....	3	Econ 10.....	3
Elective.....	3	Elective.....	3
Phys Training.....	(1)	Phys Training.....	(1)
<b>Totals.....</b>	<b>18</b>	<b>Totals.....</b>	<b>18</b>

## FOURTH YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Thesis.....	1	Thesis.....	1
Econ 15.....	3	Bus 5.....	2
Econ 17.....	3	Bank 5.....	3
Econ 12.....	3	Econ 11.....	3
Bus 9.....	2	Econ 8.....	3
Bus 10.....	3	Bus 10.....	3
Electives.....	3	Electives.....	3
Phys Training.....	(1)	Phys Training.....	(1)
<b>Total.....</b>	<b>18</b>	<b>Total.....</b>	<b>18</b>

## THE COURSE IN CHEMISTRY

The course leading to the degree of Bachelor of Science in Chemistry is intended to prepare students for technical positions. In the fourth year of the course a large amount of work can be elected to fit the student for the special line of chemical work which he desires to pursue.

## FOUR-YEAR CURRICULUM IN CHEMISTRY

(Leads to the degree of Bachelor of Science in Chemistry)

## FIRST YEAR

<i>First Semester</i>	<i>Hours</i>	<i>Units</i>	<i>Second Semester</i>	<i>Hours</i>	<i>Units</i>
Chem 23.....	9	5	Chem 23.....	9	5
Math 6.....	5	5	Math 6.....	5	5
Engl 1.....	3	3	Engl 1.....	3	3
Ger 1.....	3	3	Ger 1.....	3	3
Soc Sc 1.....	3	3	Soc Sc 1.....	3	3
Military Drill.....	(3)	(1½)	Military Drill.....	(3)	(1½)
Phys Training.....	(1)	(1)	Phys Training.....	(1)	(1)
<b>Totals.....</b>	<b>26</b>	<b>19</b>	<b>Totals.....</b>	<b>26</b>	<b>19</b>

## SECOND YEAR

<i>First Semester</i>	<i>Hours</i>	<i>Units</i>	<i>Second Semester</i>	<i>Hours</i>	<i>Units</i>
Chem 26.....	9	5	Chem 26.....	9	5
Chem 27.....	9	5	Chem 28.....	9	5
Phys 2.....	6	4	Phys 2.....	6	4
Ger 2.....	3	3	Ger 2.....	3	3
Math 16.....	5	5	Math 16.....	5	5
Military Drill.....	(3)	(1½)	Military Drill.....	(3)	(1½)
Phys Training.....	(1)	(1)	Phys Training.....	(1)	(1)
<b>Totals.....</b>	<b>35</b>	<b>22</b>	<b>Totals.....</b>	<b>35</b>	<b>22</b>

## THE COLLEGE OF LIBERAL ARTS

## THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Chem 102, 103, or 104.....	9	4	Chem 102, 103, or 104.....	9	4
Chem 29.....	9	5	Chemistry 101.....	9	5
Phys 21.....	8	5	Phys 21.....	8	5
Fren 1.....	3	3	Fren 1.....	3	3
Geol 1.....	3	3	Geol 103.....	3	3
Phys Training.....	(1)	(1)	Phys Training.....	(1)	(1)
Totals.....	32	20	Totals.....	30	20

## FOURTH YEAR

<i>Firts Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Bot.....	9	5	Bot.....	9	5
Draw.....	6	2	Draw.....	6	2
Electives (Chem).....	13		Chem 205.....	3	3
Phys Training.....	(1)	(1)	Electives (Chem).....	10	
Totals.....	20		Phys Training.....	(1)	(1)
			Totals.....	20	

## COURSE IN LIBRARY SCIENCE

The aim of the course in Library Science is to give a knowledge of books and their uses with the purposes of (a) helping the students in their own studies, and (b) enabling them to help others in the use of books.

## THE FOUR-YEAR CURRICULUM IN LIBRARY SCIENCE

*Leading to the degree of Bachelor of Philosophy in Library Science, Ph.B. (Library Science), with the title of Associate of Arts (A.A.) at the end of the second year*

## FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Engl 1.....	3	3	Engl 1.....	3	3
Group II, 1st year.....	3	3	Group II, 1st year.....	3	3
Lab Science.....	9	5	Lab Science.....	9	5
Soc Sc I.....	3	3	Soc Sc I.....	3	3
Group V, elective.....	3	3	Group V, elective.....	3	3
Military Science and Tactics.....	3	(1½)	Military Science and Tactics.....	3	(1½)
Phys Training.....	1	(1)	Phys Training.....	1	(1)
Totals.....	21	17	Totals.....	21	17

## SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Engl 3.....	3	3	Engl 3.....(Pg )	3	3
Engl 8.....	3	3	Engl 107.....(Pg )	3	3
Group II, 2nd year.....	3	3	Group II, 2nd year.....	3	3
Psyc 1.....	3	3	Phil. 1.....(Pg )	3	3
Group V, elective.....	3	3	Group V, elective.....	3	3
Elective.....	2or3	2or3	Elective.....	2or3	2or3
Military Science and Tactics.....	(1)	(1½)	Military Science and Tactics.....	(3)	(1½)
Phys Training.....	(1)	(1)	Phys Training.....		
Totals.....	17 or18	17 or18	Totals.....	17 or18	17 or18

## CULTURE COURSES

105

## THIRD YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Engl 120.....	3	3	Engl 121.....	3	3
Group II, elective.....	3	3	Group II, elective.....	3	3
Lib Sc 21.....	3	3	Lib Sc 24.....	3	3
Lib Sc 22.....	3	3	Lib Sc 26.....	2	2
Lib Sc 23.....	3	3	Lib Sc 117.....	3	3
Elective.....	2	2	Elective.....	3	3
Phys Training.....	(1)	(1)	Phys Training.....	(1)	(1)
Totals.....	17	17	Totals.....	17	17

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Engl 122.....	3	3	Engl 123.....	3	3
Engl, elective <sup>1</sup> .....	3	3	Engl, elective <sup>2</sup> .....	3	3
Lib Sc 105.....	3	3	Lib Sc 105.....	3	3
Lib Sc 115.....	3	3	Lib Sc 115.....	3	3
Lib Sc 116.....	2	2	Lib Sc 107.....	3	3
Elective.....	3	3	Elective.....	2	2
Phys Training.....	(1)	(1)	Phys Training.....	(1)	(1)
Totals.....	17	17	Totals.....	17	17

General Total..... 136 or 138 units

<sup>1</sup> English 116 or 124 recommended. <sup>2</sup> English 117 or 203 recommended.

## THE GENERAL CULTURE COURSES

The curricula which have hitherto been described are intended as specific preparation for some given profession, business, or vocation.

Students who desire an all-around general college education or who contemplate graduate study here or in America in some general field of knowledge will require a different type of training. There is a strong demand (at present unsatisfied) for this kind of graduates. The Government requires them for many positions of trust and responsibility requiring high general qualifications. The larger secondary schools need them for their principal teaching positions. The University needs them for its Junior instructorships. Pensionados and fellows to the States in general subjects ought by all means to have this training. Neither does any training better prepare its graduates for social intellectual leadership in outside life.

To meet this demand the College of Liberal Arts offers its entering students an opportunity to pursue general college courses with emphasis on any particular subjects in which they may have a special interest.

These courses, by authority of the Board of Regents, granted April 23, 1921, are placed under the direction of the different departments of the College and have the following characteristics:

(a) The first year is the same for all general courses and is described below under "Common Year."

A student who desires to take a general course will, on entering the University, register for this common year in the College of Liberal Arts as a "General Student," and will be aided in his registration and selection of work during this year by a College adviser.

(b) At the beginning of his second year, when he comes up for registration, the general student must choose some subject in which he has a special interest. He is then said to have "elected" the department in which that subject is taught and will henceforth be known as a "Major Student" of that department. The department will be his "Major Department." He will thereafter be aided in his registration and selection of work by an adviser from that department.

General students are urged to talk freely during their first year with members of the faculties of the various departments in which they have an interest in order that they may make a wise selection of a "Major Department" for their last three years.

(c) The "Major Department" elected by the general student will have full control of his curriculum during his last three years except (a) those subjects which he took in his first year and (b) a small number of "free electives" which the student must choose for himself in his Senior Year.

The Major Department will conform to the schedule of "Required Units in General Curricula" and to the "Rules" given below.

(d) The general cultural courses all fall into one of another of three types:

The B.A. type in which more work is taken in Languages (Groups I and II) than either in Groups III and IV (taken together) or in Group V. One hundred thirty-two units of work must be taken to secure this degree.

The B.S. type in which more work is taken in Science and Mathematics (Groups III and IV) than either in languages (Groups I and II) or in Social Science (Group V). One hundred forty units of work must be taken to secure this degree.

The Ph.B. type in which more work is taken in Social Science (Group V) than in either of the above divisions. One hundred thirty-six units of work must be taken to secure this degree.

(e) Students in the general courses must conform to all general regulations. In addition to their academic subjects male students must take military drill (3 hours a week) for the first two years and all students must take physical training (1 hour a week) throughout the course.

(f) They must be in residence in the College of Liberal Arts for at least two consecutive semesters to secure either the title of Associate in Arts or the Baccalaureate degree.

(g) The title of Associate in Arts is granted at the end of their second year to all regular general students who have successfully pursued their curricula of studies and who have complied with above requirements.

(h) A graduate from the general courses may take but one baccalaureate degree at a time. By remaining in residence in the College of Liberal Arts for another year and successfully completing a full year's curriculum of additional courses he may secure a second baccalaureate degree.

(i) Regular general students must follow approved curricula of studies and may not change from one to another without the consent of their major departments and of the Dean.

**THE COMMON FIRST-YEAR OF ALL GENERAL CURRICULA<sup>1</sup>**

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Group I: Engl 1 .....	3	3	Group I: Engl 1 .....	3	3
Group II .....	3	3	Group II .....	3	3
Group III: Lab. Science .....	5		Group III: Lab. Science .....	.5	
Social Science I .....	3	3	Social Science I .....	3	3
Math 1, Pol Sc 4, Hist 5 .....	3	3	Math 4, Soc 1, Anth 103 .....	3	3
<b>Totals.....</b>	<b>12+</b>	<b>17</b>	<b>Totals.....</b>	<b>12+</b>	<b>17</b>

<sup>1</sup> Students intending to continue their courses in the College of Education should note the following:

- (a) Students intending to major in Spanish should take Spanish during the first year.
- (b) Students intending to major in biology should take Botany 4 or its equivalent in the first year.
- (c) Students intending to major in home economics should take Chemistry 22 (8 units).
- (d) Students intending to major in physics or in mathematics should take Mathematic 1 or mathematic 4 during the first year.

**REQUIRED NUMBER OF UNITS IN THE GENERAL CURRICULA***Including the Common First Year*

	B.A.	B.S.	Ph.B.
Minimum Requirement in Group I (English).....	15	12	15
Minimum Requirement in Group II (French, German, Latin, Spanish, Japanese, Chinese).....	30	18	12
Minimum Requirement in Group III (Astronomy, Biology, Botany, Chemistry, Geology, Geography 4, Meteorology, Physics, Physiography, Experimental Psychology, Zoölogy).....	15	31	15
Social Science 1.....	6	6	6
Minimum Requirement in Group V (Anthropology, Economics, Education, Geography, History, Journalism, Library Science, Philosophy, Political Science, Psychology, Sociology).....	15	15	39
Additional Units in subjects chosen by the Major Department .....	42	52	43
Free Electives to be chosen by the student.....	9	6	6
<b>Total Number of Units required for Degree.....</b>	<b>132</b>	<b>140</b>	<b>136</b>

**RULES ADOPTED BY UNIVERSITY COUNCIL TO GUIDE DEPARTMENTS IN MAKING UP GENERAL CURRICULA**

I. The Major Department has the selection of all semestral courses needed to satisfy the requirements for minimum and additional units except (a) those taken by the student in his first year and (b) his free electives.

II. The Department may choose semestral courses taught in the College of Liberal Arts or in any other college. A semestral course taken in another college shall count in one of the five groups if it is of the same nature: Otherwise it shall be considered as an allied subject and shall not be counted in any group.

III. Not more than 25 per cent of units of credit may be taken in a single department or in Group I or IV, to which may be added credit for a fractional part of a semestral course.

IV. For the degree of A. B. not more than 40 per cent of units of credit may be taken in a single group or 45 per cent if the Major Department be within that group. To these limits credit for a fractional part of a semestral course may be added.

V. Concentration is to be avoided. Courses within a group shall be spread over the schedule as evenly as possible.

VI. Fundamental courses, especially those having pedagogic value as "training" courses, shall be introduced as early as possible.

VII. Convenience of other departments shall be consulted. As far as possible semestral courses shall not be assigned to "off" semester or to "off" years. No course shall be assigned without its prerequisites.

VIII. Free electives are to be assigned to the Senior Year only. The student must choose these for himself from semestral courses not within his major department, group or division.

IX. The Department, if it has, in some instances, no choice of a particular semestral course, may leave the selection to its adviser. It shall, however, specify alternative subjects or at least restrict electives to a given group.

X. The credits of work assigned to a given semester shall not differ from the average by more than two units. Any lack of balance shall be restored as soon as possible in following semester.

XI. General curricula shall be filed in the office of the Dean for approval. When approved they shall be given serial numbers.

## DEPARTMENT OF ANTHROPOLOGY AND SOCIOLOGY

Professor and Head, H. OTLEY BEYER; Assistant Professor, S. E. MACARAIG,<sup>(1)</sup> Instructor, MARCELO TANGCO, Lecturer, R. E. GALANG

The courses of study in the Department of Anthropology and Sociology are designed to offer a broad foundation for advanced work in all subjects dealing with human society and the development of civilization (such as History, Political Science, Economics and Commerce, Philology, Literature and the Drama, Esthetic Art, Religion, Philosophy, and Psychology); as well as a basic training preparatory to the professional study of Law and Government, Education, and Business Administration. Certain courses are also of special value in connection with the professional study of Medicine, Public Welfare Work, Military Science, etc.

Graduate study is also offered leading to the degrees of Master of Arts or Master of Science, depending upon whether the candidate's major specialty is Sociology, Ethnology, Physical Anthropology, or Criminology. Students who wish to specialize in any of the foregoing subjects should consult with the Head of the Department before preparing their program.

For those who wish to take work in this Department merely as part of a general culture course the following subjects are particularly recommended: Anthropology 1, 105, 106; and Sociology 1, 101, 102, 103.

Courses dealing especially with the Philippine and other Oriental peoples are: Anthropology 101, 102, 103, 107, 116, 117, 201 to 204; and Sociology 104, 106, 107, 202, 203.

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<sup>(1)</sup> On leave beginning June, 1926.

**PRIMARILY FOR UNDERGRADUATES ...**

**Anthropology 1 (Anth 1); GENERAL ANTHROPOLOGY.**—A general introduction to the whole subject of anthropology, its history, aims, and methods; physical anthropology, archaeology, ethnology, ethnography, and language. The collections in the ethnographical section of the Philippine Museum are used for purposes of illustration.

3 hours a week (Class); either semester, credit 3 units.

**Sociology 1 (Soc. 1); PRINCIPLES OF SOCIOLOGY.**—This course is designed as an introduction to the social sciences. Discussion of such topics as sources and materials for the study of Sociology; fields and methods of investigation in Sociology; scope and task of Sociology; some forms of social forces; social process, and social products; and certain sociological principles. This course is prescribed in the second year of the Commerce Course and in the third year combined Liberal Arts—Medicine course. May be taken as required group V subjects by all students in first-year General Course.

Textbook: Macaraig, *Outlined Readings in Philippine Social conditions*.

3 hours a week; either semester, credit 3 units.

**FOR BOTH GRADUATES AND UNDERGRADUATES**

**Anthropology 101 (Anth 101); ARCHAEOLOGY OF MALAYSIA.**—A general study of the remains of past civilization in Indo-China, Sumatra, Java, Celebes, Borneo, and the Philippines; together with a review of the history of this region prior to European contact, and a special study of the eastward spread of South Indian civilization.

3 hours a week; first semester, credit 3 units.

**Anthropology 102 (Anth 102); ETHNOGRAPHY OF EASTERN ASIA AND OCEANIA.**—Discussion of theories regarding the peopling of Asia and Oceania, and a general survey of the ethnography of these regions. Particular attention is paid to southeastern Asia and Malaysia. Lectures and outside reading. Anthropology 1 should either precede or accompany this course, though not rigidly required as a prerequisite. (Old number, Anth 2).

3 hours a week (Class); second semester, credit 3 units.

**Anthropology 103 (Anth 103); PHILIPPINE ETHNOGRAPHY.**—Description of the existing Philippine peoples, and a discussion of the theories as to their origin and development. Lectures and outside reading. May be taken as required Group V subject by all students in first-year General Course. (Old number, Anth 3.)

3 hours a week (Class); first semester, credit 3 units.

**Anthropology 104 (Anth 104); PHILIPPINE LANGUAGES.**—Not offered in 1926–1927.

**Anthropology 105 (Anth 105); ECONOMIC DEVELOPMENT OF MANKIND.**—Discovery; the origin of invention; and the general development of primitive economics. Lectures, outside reading, and study of collection in the Philippine Museum. (Old number, Anth 5).

3 hours a week (Class); first semester, credit 3 units.

Anthropology 106 (Anth 106); *SOCIAL ANTHROPOLOGY*.—A general study of the social and mental development of mankind, with special reference to the early history of such institutions as marriage, the family, government and law, and the development of beliefs. (Old number, Anth 6).

3 hours a week (Class); second semester, credit 3 units.

Anthropology 107 (Anth 107); *SOCIAL AND ECONOMIC LIFE OF THE PHILIPPINE MOUNTAIN PEOPLES*.—A series of lectures on the life and culture of typical local groups among the Negritos, the Mindanao pagans, and the terrace-building peoples of the Mountain Province.

3 hours a week (Class); first semester, credit 3 units.

Anthropology 108 (Anth 108); *PHYSICAL ANTHROPOLOGY*.—This course is especially desirable for students preparing for the College of Medicine and is necessary as preparation for professional work in Anthropology. The work consists of lectures and laboratory periods. The lectures deal with the comparative anatomy of man and anthropoid apes, growth, heredity, miscegenation, sexual selection, eugenics, environment, acclimatization, physiological peculiarities and physical criteria of race, and methods. Prerequisite: Anthropology 1 or Zoölogy 1.

4 hours a week (2 lec., 2 lab.); one semester, credits 3 units.

Anthropology 109 (Anth. 109); *CRIMINAL ANTHROPOLOGY AND RACE MIXTURE*.—The first half of the course deals with applied physical anthropology. In this the anatomical, physiological, and psychic peculiarities of the criminal are examined and interpreted according to the laws of heredity. Methods of identifying criminals are discussed and demonstrated. The second half of the course deals with the nature and visible effects of race mixture. The inheritance of physical characters in hybrid peoples is considered in detail. Questions of race dominance, fertility of hybrids, environmental influences and degeneration are discussed. Special attention is paid to working out Mendelian principles in the family of mixed descent. Prerequisite: Anthropology 1.

3 hours a week; one semester, credit 3 units.

Anthropology 115 (Anth 115); *MUSEUM METHODS*.—This course is intended as a partial preparation for students who desire to enter museum work. Two lectures and two hours laboratory work per week at the Philippine Museum (ethnographical section).

4 hours a week (2 Lab, 2 Class); either semester, credit 3 units.

Anthropology 116 (Anth 116); *PHILIPPINE FOLKLORE*.—A general study of Philippine myths and folk tales, and of their significance. Lectures, reading, and original work. (Identical with English 116.)

3 hours a week (Class); first semester, credit 3 units.

Anthropology 117 (Anth 117); *FOLKLORE OF EASTERN ASIA AND OCEANIA*.—A study of the myths, fables, and legends of southern and eastern Asia and the Oceanic Islands, and their bearing on the problems of Oceanic ethnology. Lectures and outside reading. (Identical with English 117.)

3 hours a week (Class); second semester, credit 3 units.

**SOCIOLOGY**

Sociology 101 (Soc 101); *SOCIAL ETHICS*.—A rapid survey of ethical principles and their practical application to industrial, commercial, civic, and political life. Lectures, assigned readings and special reports. This course is open to students in the College of Law, and College of Medicine; it is also open to others who have taken or are taking Sociology 1, Anthropology 1. (Old number, Sociology 3).

3 hours a week; first semester, credit 3 units.

Sociology 102 (Soc. 102); *SOCIAL PROBLEMS*.—The study of social problems such as pauperism, unemployment, child labor, immigration, crimes, feeble-mindedness, insanity, and industrial diseases in their relation to the business community. This course is prescribed in the third year of the Commerce Course and in the third year combined Liberal Arts—Medicine Course.

Textbook: Macaraig, Local Social Problems. (Old number, Soc. 2.)

3 hours a week; second semester, credit 3 units.

Sociology 103 (Soc 103); *SOCIAL PSYCHOLOGY*.—A study of the fundamental mechanism of the mind of the crowd, the public and related groups, e. g., religious and political sects, and political parties. The study is confined entirely to those uniformities that come into existence among men from social causes, as a result of mental contacts or mental interactions. Prerequisites, Sociology 1 and Psychology 1. (Old number, Soc 6).

3 hours a week; first semester, credit 3 units.

Sociology 104 (Soc 104); *RURAL SOCIOLOGY*.—A study of Philippine barrio life and means of improving living conditions among the farming population.

3 hours a week; second semester, credit 3 units.

Sociology 105 (Soc 105); *CRIMINOLOGY*.—A systematic survey of the problems of social control. The first part of the course discusses the nature and causes of crime. The second part is devoted to the study of programs for the social treatment of crime. Prerequisites, Sociology 1 and Anthropology 1, or Sociology 102. (Old number, Soc 5).

3 hours a week; first semester, credit 3 units.

Sociology 106 (Soc 106); *CHARITIES*.—A brief survey of the history of Philanthropy in the Philippines; the administration and control of charities, public and private; and the suggestion of constructive methods for the relief of the poor and defective. Prerequisite, Sociology 1. (Old number, Soc 8).

3 hours a week; either semester, credit 3 units.

Sociology 107 (Soc 107); *SOCIAL PROGRESS IN THE PHILIPPINES*.—Filipino life and social condition at the time of the conquest; social changes under the Spanish regime; the period of transition; and American influence on Filipino life and culture. (Old number, Soc 10).

3 hours a week; second semester, credit 3 units.

**PRIMARILY FOR GRADUATES**

Anthropology 201 (Anth 201); *SPECIAL PROBLEMS IN PHILIPPINE AND OCEANIC ANTHROPOLOGY*.—Original research by the student under direction of the instructor.

5 hours a week (Class); either semester, credit 5 units.

Anthropology 202 (Anth 202); *SPECIAL PROBLEMS IN ASIATIC ANTHROPOLOGY*.—Original research by the student under direction of the instructor. The courses in Anthropology 201 and 202 are open to advanced students who possess a reading knowledge of Spanish. Either of these courses may be extended throughout the year.

5 hours a week (Class); either semester, credit 5 units.

Anthropology 203 (Anth 203); *RACIAL ANATOMY OF THE PHILIPPINE PEOPLES*.—Research under direction of the instructor. Prerequisites, Anthropology 1, or 103, and Zoölogy 1. Courses in Anatomy at the College of Medicine are also recommended.

3 hours a week (Class); second semester, credit 3 units.

Anthropology 204 (Anth 204); *PHILIPPINE ARCHAEOLOGY*.—Lectures and research. Prerequisites, Anthropology 1 and 101.

3 hours a week (Class); first semester, credit 3 units.

Anthropology 205 (Anth 205); *RESEARCH IN CRIMINAL ANTHROPOLOGY*.—Prerequisites, Anthropology 1 and Sosiology 105. The course in Criminology in the College of Law is also recommended. Other preparation may be required at the discretion of the instructor.

5 hours a week (Class); either semester, credit 5 units.

Anthropology 206 (Anth 206); *THE INDO-OCEANIC LANGUAGES*.—Lectures and outside reading. Should be preceded or accompanied by Anthropology 104.

3 hours a week (Class); either semester, credit 3 units.

Sociology 201 (Soc 201); *SOCIAL STATISTICS*.—The use of Statistics as a method of scientific study of social phenomena. Special attention is given to the interpretation of statistical material relating to social problems in the Philippines—vital statistics, statistics of pauperism, crime, defective classes, emigration and immigration, and labor conditions. Prerequisites, Sociology 1 and Economics 1. (Old number, Soc 7.)

3 hours a week; first semester, credit 3 units.

Sociology 202 (Soc 202); *PRISON SYSTEM*.—A detailed study of the prison system in the Philippines; the administration of Bilibid Prison, the Lolomboy Reformatory, the Iwahig Penal Colony, the San Ramon Penal Colony, and other similar institutions. The suggestion of constructive methods for improvement in the light of experience of countries like England, France, United States, and Germany. Prerequisites, Sociology 1 and 102. (Old number, Soc 9.)

3 hours a week; second semester, credit 3 units.

Sociology 203 (Soc 203); *SEMINAR IN SOCIAL PROBLEMS*.—An intensive study of Philippine social problems from primary sources and

investigations to be conducted by students under the supervision of the instructor. (Old number, Soc 11).

3 hours a week; either semester, credit 3 units.

### DEPARTMENT OF BOTANY

Prof. SANTOS (Acting Head), Prof. MARAÑON, Miss PASTRANA, Mrs. CAPARRAS, Miss TOLENTINO, Miss VERZOSA, Mr. PASCASIO, Miss CASTRO, and Mr. VELASQUEZ

Botany 1 (Bot 1); *ELEMENTARY BOTANY*.—Laboratory work, lectures, and recitations covering the essential of elementary botany including the morphology and physiology of seed plants, a general survey of the great group of plants, and subjects of general interest such as heredity. This course is required of students who are taking the pre-medical course.

Textbooks: Brown, A Textbook of General Botany; Brown, Laboratory Botany.

9 hours a week (6 Lab, 3 Class); one semester course (first and second semester), credit 5 units.

Botany 2 (Bot 2); *MORPHOLOGY AND CLASSIFICATION OF PLANTS*.—The course is designed for beginning students in botany. The work in the first semester is a general course in the morphology and physiology of seed plants, and in the second semester, the morphology and classification of lower plants and the classification of the flowering plants. Lectures and laboratory work will be supplemented by study in the field and in the herbarium; each student will be required to prepare a small herbarium. The chief object of the course is to give students a broad conception of the morphology, histology, and classification of plants. It is especially suitable for students desiring a preparation for the study of plant products and is required of first year pharmacy students as the basis for the study of pharmacognosy.

Textbooks: Brown, A Textbook of General Botany; Brown, Laboratory Botany.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 5 units each semester.

Botany 4 (Bot 4); *TEACHERS' COURSE IN BOTANY*.—A beginning course designed primarily for those students in the College of Education who plan to become teachers of biology. During the first semester the general morphology and physiology of plants will be considered. The laboratory work will be largely experimental. During the second semester the subjects studied will include reproduction and heredity; the morphology, classification, and origin of the different groups of plants; disease-producing organisms; and Philippine vegetation. Special attention will be given throughout the course to the collection of materials for laboratory work and the selection of illustrative materials from the local flora.

Textbooks: Brown, A Textbook of General Botany; Brown, Laboratory Botany.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 5 units each semester.

Botany 5 (Bot 5); *GENERAL BOTANY*.—A lecture and demonstration course designed to cover the general subject of botany for those students who are not required to take other courses in botany, but who wish to gain some knowledge of the subject in relation to a general education. No previous work in the botany or biology is required. The subject considered will include the general morphology and physiology of plants; reproduction, breeding; disease-producing organisms; and the morphology, classification, origin of the different groups of plants, Philippine vegetation, and Philippine economic plant products.

Textbook: Brown, A Textbook of General Botany.

3 hours a week (Class); one semester, credit 3 units.

Botany 6 (Bot 6); *GENERAL BOTANY*.—A lecture and laboratory course designed to cover the general subject of botany for students not required to take botany.

Textbooks: Brown, A Textbook of General Botany, Brown, Laboratory Botany.

9 hours a week (6 Lab, 3 Class); throughout the year credit, 10 units.

Botany 7 (Bot 7); *PHARMACOGNOSY*.—A study of the crude vegetable drugs official and non-official in the United States Pharmacopœia. The laboratory work will cover the gross and microscopical characters of drugs and include some study of powdered drugs. Identification will receive careful attention and there will be frequent tests of ability to determine drugs. Lectures, recitation, and tests will cover the main facts of the pharmacography of each drug. The roots, rhizomes, barks, and leaves will be taken up in this semester.

Textbook: Kraemer, Scientific and Applied Pharmacognosy, or Sayre, Organic Materia Medica and Pharmacognosy. Prerequisite: Botany 2.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

Botany 8 (Bot 8); *PHARMACOGNOSY*.—A continuation of the preceding course dealing with the flowers, fruits, seeds, and miscellaneous vegetable and animal drugs official and non-official in the United States Pharmacopœia. Prerequisite: Botany 7.

9 hours a week (6 Lab, 3 Class); second semester, credit 5 units.

Botany 11 (Bot 11); *HOME ECONOMICS BOTANY*.—An elementary course in botany designed to teach those phases of the subject which besides their cultural value will be useful in the home or which are important as an introduction to advanced home economic subjects such as food, clothing, bacteriology, and sanitation.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

Botany 12 (Bot 12); *ECONOMIC PHILIPPINE BOTANY*.—This course deals with the economic plants and plant products of the Philippines. Stress will be laid on the forests and natural resources and on the possibilities for the development of new agricultural industries. The products to be discussed will include wood, wood products, food, fibers, paper pulp, oils, gums, resins, tan, bark, bamboos, and ornamental and medicinal plants.

3 hours a week (Class); one semester credit 3 units.

Botany 101 (Bot 101); *EVOLUTION AND HEREDITY*.—A lecture course on evolution and heredity as applied to plants and animals. In the latter part of the course, the economic and sociological aspects of the subject will be considered. Prerequisite: A general course in Botany or Zoölogy.

3 hours (Class); one semester, credit 3 units.

Botany 103 (Bot 103); *ELEMENTARY PLANT PHYSIOLOGY*.—Laboratory and field work on the physiology of plants. Open to students who have had Botany 1, 2, 4, or 6. Prerequisite: Botany 1, 2, 4, or 6.

Textbook: Palladin-Livingston, *Plant Physiology*.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Botany 113 (Bot 113); *PLANT DISEASES*.—The fungous and bacterial diseases of cultivated plants and the means of checking them. Prerequisite: Botany 2, 4, or 6.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Botany 117 (Bot 117); *PLANT CHEMISTRY*.—A didactic and laboratory course. The lectures consist of a general survey of the different plant constituents from the biochemical viewpoint. Their occurrence, physical and chemical properties, and the principles involved in the tests for identification are considered. The laboratory work comprises the study of methods for plant analysis including the isolation and identification of the different organic compounds elaborated by the plant. Prerequisites: Inorganic and Organic Chemistry, and General Botany.

7 hours a week (6 Lab, 1 Class); throughout the year, credit 3 units each semester.

Botany 118 (Bot. 118); *ORGANIC EVOLUTION*.—A lecture course designed to cover the general principles and theories of organic evolution.

3 hours a week (Class); one semester, credit 3 units.

Botany 119 (Bot. 119); *HEREDITY*.—A lecture course designed to cover the laws and applications of heredity.

3 hours a week (Class); one semester, credit 3 units.

Botany 210 (Bot 210); *VEGETABLE HISTOLOGY*.—A systematic study of the tissues of vascular plants with particular emphasis on the method used in studying plant morphology. This course is designed primarily as an advanced course for students desiring to teach botany. Special attention will be given to developing the power of observation, and to the preparation of specimens, and the making of illustrations. Prerequisite: Botany 2, 4, or 6.

12 hours a week (Lab, with occasional lectures); throughout the year, credit 5 units each semester.

Botany 211 (Bot 211); *VEGETABLE PHYSIOLOGY*.—An advanced course of lecture and laboratory work on the physiology of plants. Prerequisite: Botany 103.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 5 units each semester.

**Botany 214 (Bot 214); MORPHOLOGY AND REPRODUCTION OF PLANTS.**—An advanced course in the structure and reproduction of the Algæ, Fungi, Musci, Pteridophytes, and Spermatophytes. Prerequisite: Botany 2, 4, or 6.

Throughout the year, credit 5 units each semester.

**Botany 215 (Bot 215); ECOLOGY.**—A course in plant geography to include the study of plant formations and of the factors which are responsible for the distribution of the different types of vegetation. This is a vacation course to be given at some base from which a series of diverse plant formation may be reached. Prerequisite: Botany 2, 4, or 6.

Credit 6 units.

**Botany 216 (Bot. 216); SYSTEMATIC BOTANY.**—A course in the classification of the flowering plants. Prerequisite: Botany 2, 4, or 6.

Throughout the year, credit 5 units each semester.

## DEPARTMENT OF CHEMISTRY

Professor and Head, AUGUSTUS P. WEST; Professor, JOSE I. DEL ROSARIO; Associate Professor, AMANDO CLEMENTE; Assistant Professors, FRANCISCO QUISUMBING, PILAR P. HERRERA; Instructors, LUIS GONZAGA<sup>(1)</sup>, ANTONIO I. DE LEON,<sup>1</sup> JOSE PATERNO; Assistants, SIMEON SANTIAGO, ASUNCION SANDOVAL, JOSEFA GOTAUCO, PAZ SORIANO, FRANCISCA MANAS, ANTONIO G. SANTOS, LUISA ANTONIO, and PEDRO R. ALMORAIDE

The Department of Chemistry occupies the Freer Chemical Laboratory and the adjacent building, the Freer Annex.

The courses of study are designed primarily to meet the necessary requirements of students in the various colleges of the University. For students desiring to specialize in Chemistry the course leading to the B. S. degree with chemistry as the major subject offers the following prospects:

(a) Graduate study in the University of the Philippines or foreign universities.

(b) Junior technical positions in technical laboratories like the Bureau of Science.

(c) Junior teaching positions in colleges or private schools. A general curriculum leading to the degree of B. S. in Chemistry will be found on page 103. The courses in chemistry in this curriculum include Chem. 23, 24, and 25 in the First Year; Chem. 26, 27, and 28 in the Second Year; Chem. 29 in the Third Year; and Chem. 102 (103 or 104) in the Fourth Year. The student may also choose certain electives in chemistry.

Graduate study is offered leading to the degree of Master of Science. To obtain this degree the student must complete, besides a certain number of formal courses, an experimental dissertation on some problem approved by the Head of the Department and the committee on graduate study. Usually the degree may be obtained in about one year though some problems may, perhaps, necessitate a somewhat longer period.

The courses offered by the Department of Chemistry are divided as follows:

Numbers 21 to 100 for undergraduates (Junior College).

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<sup>1</sup> On leave.

Numbers 101 to 200 for both undergraduates and graduates (Senior College).

Numbers 201 to 300, elective for graduates.

#### COURSES PRIMARILY FOR UNDERGRADUATES

Chemistry 22 (Chem 22); *CHEMISTRY FOR HOME ECONOMICS STUDENTS*.—A course designed primarily for students in home economics.

Lectures, recitations, and laboratory work. (Can not be offered in lieu of Chem. 23, 24 or 25.)

Textbooks: McPherson-Henderson, *Elementary Study of Chemistry*. Snell, *Elementary Household Chemistry*.

7 hours a week (3 Class, 4 Lab); throughout the year, credit 8 units.

Chemistry 23 (Chem 23); *GENERAL AND INORGANIC CHEMISTRY*. (Premedical and General Science.)—A course giving the essentials of elementary general inorganic college chemistry. Both the fundamental principles of the subject and the practical application to the industries and every day life are emphasized.

Lectures, recitations, and laboratory work.

Lectures: T-Th-S—10:30–11:30.

Laboratory: Sections A, B, C. M-W-F—7:30–9:30.

Laboratory: Sections D, E, F. T-Th-S—7:30–9:30.

Textbook: Clemente, A.: *General Inorganic Chemistry* (outline notes).

9 hours a week (3 Class, 6 Lab); throughout the year, credit 10 units.

Chemistry 24 (Chem 24); *GENERAL AND INORGANIC CHEMISTRY*. (For Pharmacy).—A course similar to 23, designed primarily for pharmacy students.

Lectures, recitations, and laboratory work.

Lectures: M-W-F—8:30–9:30.

Laboratory: Sections A, B, C. M-W-F—9:30–11:30.

Textbook: Clemente, A.: *General Inorganic Chemistry* (outline notes).

9 hours a week (6 Lab, 3 Class); throughout the year, credit 10 units.

Chemistry 25 (Chem 25); *GENERAL AND INORGANIC CHEMISTRY*. (For engineering).—A course similar to 23, designed primarily for engineering students. Special attention is given to the chemistry of metals and construction materials. The latter part of the course is devoted exclusively to a short course in qualitative inorganic analysis.

A special course for dental students is given in section G of this class. Particular attention is devoted to a consideration of dental alloys, amalgams, cements, etc.

Lectures, recitations, and laboratory work.

Lectures: M-W-F—10:30–11:30.

Laboratory: Sections A, B, C. T-Th—1:00–4:00.

Laboratory: Sections D, E, F. M-F—1:00–4:00.

Laboratory: Section G. M-F—1:00–4:00.

Textbook: Clemente, A.: *General Inorganic Chemistry* (outline notes).

9 hours a week (6 Lab, 3 Class); throughout the year, credit 10 units.

Chemistry 26 (Chem 26); *ORGANIC CHEMISTRY*. (Chemistry of Carbon Compounds).—An introductory course giving the theoretical principles and practical applications of synthetic organic chemistry. The

general relations between different groups of compounds, the application of general reactions, and the laboratory preparation, and general behavior of compounds characteristic of each group are emphasized. Prerequisites: Chemistry 23 (24 or 25).

Lectures, recitations, and laboratory work.

Lectures: Section A. M-W-F—1:00–2:00.

Lectures: Section B. T-Th-S—1:00–2:00.

Laboratory: Section A. M-W-F—2:00–4:00.

Laboratory: Section B. T-Th-S—2:00–4:00.

Textbook: West, A. P., *Experimental Organic Chemistry*.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 10 units.

**Chemistry 27 (Chem 27); *QUALITATIVE INORGANIC ANALYSIS*.**—A systematic qualitative analysis of basic and acidic constituents of compounds, with drill in the analysis of mixtures, minerals and alloys ("unknowns") the composition of which is unknown to the student. Each "unknown" is considered a practical examination. A course designed primarily for pre-medical and pharmacy students. Prerequisites: Chemistry 23 (24 or 25).

Lectures, recitations, and laboratory work.

Lectures: Section A. T-Th-S—7:30–8:30.

Lectures: Section B. M-W-F—7:30–8:30.

Laboratory: Section A. T-Th-S—8:30–10:30.

Laboratory: Section B. M-W-F—8:30–10:30.

Textbook: Noyes, A. A.; *Qualitative Analysis*.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

**Chemistry 28 (Chem 28); *QUANTITATIVE INORGANIC ANALYSIS*.** (Volumetric and Gravimetric.)—The theory and practice of volumetric and gravimetric analysis, chiefly the analysis of simple salts, minerals and alloys. Special emphasis is laid upon the chemical calculations of standard solutions, oxidation reactions, iodimetry, etc. Prerequisites: Chemistry 23 (24 or 25) and 27.

Lectures, recitations, and laboratory work.

Lectures: T-Th-S—7:30–8:30.

Laboratory: T-Th-S—8:30–10:30.

Textbook: Talbot, *Quantitative Analysis*.

9 hours a week (6 Lab, 3 Class); second semester, credit 5 units.

**Chemistry 29 (Chem 29); *ELEMENTARY PHYSICAL CHEMISTRY*.**—A course devoted to the elementary study of the fundamental laws and properties of liquids, and gases. Special attention is given to the essentials of electro-chemistry, thermo-chemistry, and chemical dynamics, colloids, radio-chemistry, etc. Prerequisites: Chemistry 23, (24 or 25), 27, and 28, Physics 2.

Lectures, recitations, and laboratory work.

Textbook: Getman; *Theoretical Chemistry*; Davison-VanKlooster, *Laboratory Manual of Physical Chemistry*.

9 hours a week (3 Class, 6 Lab); first semester, credit 5 units.

**Chemistry 30 (Chem 30); *TECHNICAL ANALYSIS*.** (Applied Analytical Chemistry).—A course in the analysis of ores, water, mineral oils, soils, cement, gas, etc. Prerequisites: Chemistry 23 (24 or 25), 27, and 28.

Lectures, recitations, and laboratory work.

Textbook: Griffin, Technical Analysis supplemented by Scott, Standard Methods of Analysis, and Classen, Electrolytic Analysis.

9 hours a week (7 Lab, 2 Class); throughout the year, credit 8 units.

#### COURSES BOTH UNDERGRADUATE AND GRADUATE

Chemistry 101 (Chem 101); *HISTORICAL CHEMISTRY*.—Historical study of the development of chemical theories from the time of the ancients to the present. Special attention is given to reports on private reading and literature reviews on assigned topics.

Prerequisites: Chemistry 23 (24 or 25), 27, and 28.

Lectures and recitations.

Textbook: Moore, Historical Chemistry.

2 hours a week; one semester, credit 2 units.

Chemistry 103 (Chem 103); *FOOD ANALYSIS*.—A course in the analysis of foods such as milk, butter, cheese, coffee, chocolate, sugar (Polariscope, Fehling's and Clerget's method), cereals, etc.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

Textbook: Griffin, Technical Analysis and Woodman, Food Analysis.

9 hours a week (7 Lab, 2 Class); throughout the year, credit 8 units.

Chemistry 104 (Chem 104); *CHEMISTRY OF VEGETABLE FATS AND OILS*.—Determination of oil constants and special methods of investigation. Philippine agricultural and forest products may be studied if desired.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

Textbook: Special notes with references to Lewkowitsch, Chemical Technology and Analysis of Oils, Fats, and Waxes.

9 hours a week (7 Lab, 2 Class); throughout the year, credit 8 units.

Chemistry 105 (Chem 105); *ADVANCED ORGANIC CHEMISTRY (ANALYTIC)*.—Ultimate organic analysis qualitative and quantitative; study of methods for detecting and estimating the different elements and groups in organic compounds.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

Textbook: Clarke, Handbook of Organic Analysis; Noyes-Mullikan; Identification of Organic Compounds.

9 hours a week (2 Class, 7 Lab); one semester, credit 4 units.

Chemistry 106 (Chem 106); *ADVANCED ORGANIC CHEMISTRY (SYNTHETIC)*.—Advanced organic synthesis and special training in organic laboratory technique.

Prerequisites: Chem 23 (24 or 25), 26, 27, 28, and 105.

Lectures, recitations, and laboratory work.

Textbook: Gattermann—Schober, Practical Methods of Organic Chemistry and special notes with references to Houben—Weyl, Die Methoden der Organischen Chemie.

9 hours a week (2 Class, 7 Lab); one semester, credit 4 units.

Chemistry 108 (Chem 108); *ADVANCED INORGANIC COLLEGE CHEMISTRY*.—A review course in General and Inorganic Chemistry to suit the needs of students who wish to take a more advanced course in inorganic chemistry and who do not expect to pursue a general course in physical chemistry.

Lectures, recitations, and laboratory work.

Textbook: Chapin, Second Year Chemistry.

9 hours a week (3 Class, 6 Lab); one semester, 5 units.

#### ELECTIVE COURSES

Elective courses given primarily for graduates students.

Courses 201 to 206 will not be given regularly each year but only at intervals. Special announcements will be issued each year. Students desiring to take any of these courses should make formal application to the Head of the Department at least one year in advance. General prerequisites are chemistry 23 (24 or 25), 26, 27, 28, and 29.

Chemistry 201 (Chem 201); *PHOTO-CHEMISTRY*.—Energetics of radiation; statics, kinetics, and dynamics of photo-chemical change, etc.

Special prerequisite: Physics 3 and 4.

Lectures and recitations.

Textbook: Special notes and references.

3 hours a week; one semester, credit 3 units.

Chemistry 202 (Chem 202); *COLLOID CHEMISTRY*.—General properties of colloids; methods of preparation and practical applications of colloid chemistry.

Special prerequisites; Physics 3 and 4.

Lectures, recitations, and laboratory work.

Textbook: Holmes, Colloid Chemistry.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Chemistry 203 (Chem 203); *CHEMICAL THERMO-DYNAMICS*.—Consideration of thermo-dynamic principles. Chemical equilibrium in homogeneous and heterogeneous systems from the thermo-dynamic standpoint.

Special prerequisites: Physics 3 and 4.

Lectures and recitations.

Textbook: Special notes and references.

3 hours a week; one semester, credit 3 units.

Chemistry 204 (Chem 204); *CHEMICAL MICROSCOPY*.—Characteristics of micro-chemical methods and tests.

Lectures, recitations, and laboratory work.

Textbook: Chamot, Chemical Microscopy.

8 hours a week (6 Lab, 2 Class); one semester, credit 4 units.

Chemistry 205 (Chem 205); *INDUSTRIAL CHEMISTRY*.—Lectures on Modern Factory operation, Sanitation, Water Supply, Fuels, Industrial Alcohol, Acids, Alkalies, Electrochemical and Metallurgical Industries; Cement, Sugar, and Cellulose Industries; Dehydrated, Evaporated and Condensed Foods. Special attention is given to Philippine industries and literature reviews on Philippine industrial researches.

Factory inspections in Manila and vicinity.

Textbook: Rogers, *Industrial Chemistry*.

3 hours a week; one semester, credit 3 units.

Chemistry 206 (Chem 206); *INDUSTRIAL CHEMISTRY*.—A laboratory course in industrial processes, to supplement chemistry 205.

Textbook: Special notes and references.

9 hours a week; one semester, credit 3 units.

Chemistry 207 (Chem 207); *THE TEACHING OF CHEMISTRY*.—Lectures and conferences on the teaching of science with particular reference to chemistry. A course designed specially for prospective teachers in chemistry.

Lectures and recitations.

Textbook: Notes and references supplemented by Smith-Hall, *The Teaching of Chemistry*.

1 hour a week; one semester, credit 1 unit.

Chemistry 208 (Chem 208); *ADVANCED PHYSICAL CHEMISTRY*.—A detailed study of the various branches of physical chemistry. Emphasis is laid upon theories and practical applications.

Prerequisites; Chem. 29, Physics 3 and 4.

Textbook: Noyes-Sherrill, *Chemical Principles* supplemented by Lewis, *Physical Chemistry*.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 5 units each semester.

## RESEARCH

The Philippine forests contain a large number of trees and other plants which produce seed oils, essential oils, resins, and gums. A number of these forest products are used locally while a few are exported to foreign countries.

Various economic and theoretical problems on these forest products are now being investigated. Students desiring to work on the chemistry of Philippine forest products for a Master of Science degree have a wide range of practical subjects from which to select a problem for dissertation work.

Students desiring research work in Industrial Physical, or Analytical Chemistry may also obtain problems for investigation along these lines.

## DEPARTMENT OF ECONOMICS AND BUSINESS ADMINISTRATION

Dean MAXIMO M. KALAW (Acting Head), Professors: MAC H. DONALDSON,<sup>1</sup> NICANOR REYES,<sup>1</sup> Assistant Professors: MARIANO D. GANA,<sup>1</sup> FERMIN FRANCISCO, MARIANO CONCEPCION, JOSE P. APOSTOL, LINO J. CASTILLEJO, Instructors: BELEN ENRILE,<sup>1</sup> PEDRO A. SANTIAGO, CLEMENTE USON.

Professorial Lecturers: CONRADO BENITEZ, MARCIANO GUEVARA, RAFAEL FERNANDEZ, EMETERIO ROA.

Lecturers: BALBINO ZAFRA, WALLACE E. PRIOR.

The courses in this department are designed to give cultural and professional training. It is the purpose of the cultural courses to lay the foundation for correct thinking in matters pertaining to the economic and social relations of mankind; to enable the citizen to see his way, clearly and with safety, through the maze of fallacious theories and doctrines; to sift the true from the false.

The professional courses are designed to train students for active and successful participation in various lines of business activities in the Philippines; to encourage research into the causes which are productive of unjust and uneconomic business practices; to point the way to the handling of a large share of the business of the Islands by Filipinos.

Students are urged to consult freely with the Head of the Department and the instructors with reference to their particular needs.

### UNDERGRADUATES COURSES

#### ECONOMICS

**Economics 1 (Econ 1); PRINCIPLES OF ECONOMICS.**—General introduction to the study of economics. Application of principles to local conditions. First Year.

Required of commerce students and Economics Majors.

3 hours a week; either semester, credit 3 units.

**Economics 2 (Econ 2); ECONOMIC DEVELOPMENT OF THE PHILIPPINES.**—The course gives a general survey of the Philippine economic growth, and aims to show how and to what extent economic forces have determined the history of the country. Required of Commerce students and Economic Majors. Second Year.

3 hours a week; second semester, credit 3 units.

**Economics 3 (Econ 3); ECONOMIC DEVELOPMENT OF THE UNITED STATES.**—The economic transformation of a continent. Elective. Second Year.

3 hours a week; first semester, credit 3 units.

**Economics 4 (Econ 4); ECONOMIC DEVELOPMENT OF MODERN EUROPE.**—This course aims to explain the nature and effects of the more important economic changes and achievements in the principal industrial

<sup>1</sup> On leave.

countries of Europe, and deals with certain outstanding features of the present industrial society. Elective. Second Year.

3 hours a week; first semester, credit 3 units.

Economics 105 (Econ 105); *ECONOMIC DEVELOPMENT OF THE ORIENT*.—The immediate neighbors of the Philippines and their economic Growth. Elective. Fourth Year. Business and Theory Majors.

3 hours a week; second semester, credit 3 units.

Economics 6 (Econ 6); *PUBLIC FINANCE*.—Modern theories of public expenditures, budgetary legislation, management of public domains and industries, public revenues and debts with special reference to budgetary systems of the United States and the Philippines. Third Year. Required of commerce students.

3 hours a week; second semester, credit 3 units.

Economics 7 (Econ 7); *MONEY AND BANKING*.—A study of the principles of banking and of credit. Third Year. Required of commerce students.

3 hours a week; first semester, credit 3 units.

Economics 8 (Econ 8); *LABOR CONDITIONS AND PROBLEMS*.—General survey of trade union movements in the various countries of Europe and America, including an analysis of Philippine labor conditions; policies of the various types of trade and industrial organizations in the United States and the Philippines; contemporary labor legislation, strikes, etc. Fourth Year. Required of commerce students.

3 hours a week; second semester, credit 3 units.

Economics 9 (Econ 9); *BUSINESS ORGANIZATION*.—Evolution of forms of business organization; fundamental principles underlying efficiency in the organization of a modern business enterprise; its nature, functions, and objects; business opportunities and the enterpriser; advantages and disadvantages of individual ownership, partnerships, and corporation. Third Year. Required of Commerce students.

Text: Marshall, *Business Administration*.

3 hours a week; first semester, credit 3 units.

Economics 10 (Econ 10); *INDUSTRIAL PROBLEMS*.—Brief survey of the historical development of industry with special reference to the Industrial Revolution. The methods and principles of scientific management and administrative efficiency.—discipline, instruction and welfare of labourers. Special attention will be given to local industrial problems. Required of commerce students. Third Year.

3 hours a week; second semester, credit 3 units.

Economics 11 (Econ 11); *TRANSPORTATION*.—A study of the development of transportation problems. Public highway and automobile transportation; railroads—organization and function of various departments; factors entering into rate-making; government regulation of rates; ocean transportation—a discussion of rates, terminal facilities, routes, etc. Inter-relation of land and water transportation. Fourth Year. Required of commerce students.

3 hours a week; second semester, credit 3 units.

Economics 12 (Econ 12); *DOMESTIC AND FOREIGN TRADE*.—A study of the general principles; balance of trade; machinery for export and import; terms of sale and financing of foreign trade. Required of commerce students. Fourth year.

3 hours a week; first semester, credit 3 units.

Economics 113 (Econ 113); *PHILIPPINE COMMERCIAL RELATIONS*.—An analysis of the commercial relations of the Philippine Islands with foreign countries with special reference to tariff regulations. The balance of trade and its relation to the Philippine currency system.

3 hours a week, second semesters, credit 3 units.

Economics 114 (Econ 114); *INDUSTRIAL COMBINATIONS, TRUST, ETC.*.—General survey of the origin and growth of trusts, and other forms of business combinations, with a discussion of the questions arising therefrom.

3 hours a week, first semester, credit 3 units.

Economics 15 (Econ 15); *HISTORY OF ECONOMIC THOUGHT*.—This course traces the problems of political economy as they have developed, and analyzes the different solutions advanced by writers on economics. Fourth Year. Required of commerce students.

3 hours a week; first semester, credit 3 units.

Economics 116 (Econ 116); *SEMINAR IN BUSINESS*.—Original investigation of business problems under the direction and guidance of the members of the faculty. The problem investigated may be offered as a thesis required for graduation. Hours to be arranged with professor in charge.

3 hours a week, first semester, credit 3 units.

Economics 17 (Econ 17); *PROBLEMS OF AGRICULTURAL PRODUCTION*.—The factors of agricultural production; the organization of the farm, the size of the farm; rent of farm lands; farm accounting; farmer's means of acquiring land; tenancy in the Philippines; rural economic conditions. Fourth Year. Required of commerce students.

3 hours a week; first semester, credit 3 units.

Economics 18 (Econ 18); *MARKETING OF FARM PRODUCTS*.—Tracing of goods from the hands of the producer into the hands of the consumer; including an analysis of the functions of middlemen. Organized exchanges, coöperative marketing. Channels of local trade. Elective.

3 hours a week, second semester, credit 3 units.

Economics 119 (Econ 119); *AGRICULTURAL COÖOPERATION*.—Study of the various forms of coöperation found among farmers in the Philippine Islands and elsewhere, with special emphasis on rural credits. Elective.

2 hours a week; second semester, credit 2 units.

Economics 120 (Econ 120); *LIFE INSURANCE*.—An introductory course dealing with the nature and uses of life insurance, its scientific foundation, special forms of life insurance, office organization, government supervision, etc. "Life Insurance" by Huebner is used as a textbook, supplemented by practical problems such as are actually met with in life insurance offices. Elective.

3 hours a week; first semester, credit 3 units.

Economics 30 (Econ 30); *TEACHERS' COURSE IN ECONOMICS*.—Brief review of fundamental principles. Survey of different high school texts. Methods of teaching. Economic survey as an aid. Connection of Economics with other subjects—history, geography, mathematics, psychology, and sociology in particular. Uses and applications of economics for different classes of students. Methods of stimulating interest in the subject. (For Education students.)

3 hours a week; first semester, credit 3 units.

#### BUSINESS

Business 1 (Bus 1); *RETAIL STORE PROBLEMS*.—The retailer's place in marketing; selecting the location for a store; fixtures and other equipment; efficient interior arrangement of layout; outlining the store organization; care of the stock; selecting and training employees; sales plans, advertising, window displays, and attractive arrangement of stock; delivery problems. Elective. Third Year. Business Majors.

Prerequisite: Economics 1.

3 hours a week; first semester, credit 3 units.

Business 2 (Bus 2); *ADVERTISING*.—Different advertising media, the work of the manager, the solicitor and the service department; various departments of advertising work, such as commercial art, engraving, advertising display, rates of newspapers and magazines, and the planning of campaign. The student is expected to prepare advertising copy for correction. Elective. Third Year. Business Majors.

3 hours a week; first semester, credit 3 units.

Business 3 (Bus 3); *SALESMANSHIP*.—The psychology of salesmanship; qualifications and duties of salesmen; organization and operation of the sales department and an examination of its important problems. Elective. Third Year. Business Majors.

3 hours a week; second semester, credit 3 units.

Business 4 (Bus 4); *THE USE OF TRADE JOURNALS*.—Reading course on various current standard local and foreign trade journals. Students are required to submit reports on financial, industrial, labor, transportation, and general conditions in the principal foreign markets and in the Philippines. Elective.

1 hour a week; second semester, credit 1 unit.

Business 5 (Bus 5); *BUSINESS ENGLISH*.—Business correspondence with special reference to composition, including an examination into secretarial duties. Fourth Year. Required of commerce students.

2 hours a week; second semester, credit 2 units.

Business 6 (Bus 6); *BUSINESS SPANISH*.—Business correspondence and composition in Spanish. Elective.

2 hours a week; first semester, credit 2 units.

Business 7 (Bus 7); *BUSINESS LAW IN GENERAL*.—The general law of contracts; purchase and sale; agency; carriers and charter parties; insurance and salvage laws. Third Year. Required of commerce students.

3 hours a week; first semester, credit 3 units.

Business 8 (Bus 8); *THE LAW OF NEGOTIABLE INSTRUMENTS*.—The law of commercial associations, corporations, partnership, and joint accounts, as well as public utilities. The negotiable instruments law, warehouse receipts law, usury law, and insolvency law. Third Year. Required of commerce students.

3 hours a week; second semester, credit 3 units.

Business 9 (Bus 9); *TAXATION*.—Study of the principles of taxation, with special reference to cases arising under local procedure and laws. Fourth Year. Required of commerce students.

2 hours a week; first semester, credit 2 units.

Business 10 (Bus 10); *BUSINESS LABORATORY*.—Various student forms of business, such as banking, wholesale and retail trade, brokerage, commission, contracting, etc., will be organized, managed, and operated by the students. Sets of books of accounts, vouchers, and other forms found in actual business houses. Practical questions. Aim is to give students a practical working experience under conditions similar to those met in actual life. Fourth year. Required of commerce students.

3 hours a week; whole year, credit 6 units.

#### BANKING

Banking 101 (Bank 101); *BANKING INSTITUTIONS*.—A study and analysis of the different types of banking institutions, with special reference to the development, organizations, and functions of Commercial, Savings, and Agricultural Banks, and of Trust Companies. Prerequisites: Economics 7. Elective. Banking majors.

3 hours a week; second semester, credit 3 units.

Banking 102 (Bank 102); *BANKING SYSTEMS*.—A study of the banking systems of the more important countries, including an examination into the relations existing between such systems and their respective governments. Prerequisite: Economics 7. Elective.

3 hours a week; first semester, credit 3 units.

Banking 3 (Bank 3); *BANKING PRACTICE*.—A practical course, training students in the actual operations of the various departments of banks, with special attention given to foreign exchange and the interpretation of bank statements and statistics. Required of commerce students. Third Year. Prerequisite: Economics 7.

3 hours a week; second semester, credit 3 units.

Banking 4 (Bank 4); *BANKING LAW*.—A study of the legal problems arising in connection with the principal banking operations. Also a critical examination into statutory laws for the government and supervision of banking institutions with special reference to the laws of the United States and the Philippine Islands. Fourth Year. Banking and Finance Majors.

2 hours a week; second semester, credit 2 units.

Banking 5 (Bank 5); *PRIVATE FINANCE*.—Fundamental principles of financial policy involved in the organization and management of private

enterprises, including a special examination into questions of permanent and temporary financing operations. Fourth Year. Required of all commerce students.

3 hours a week; second semester, credit 3 units.

Banking 106 (Bank 106); *INVESTMENTS*.—Laws of investment; types of investment and factors affecting the value of each type; underwriting and sales of securities; analysis of statistical information and reading of financial pages; stock market; stock brokers and methods of trading; study of the principal stock exchanges in the world, particularly Wall Street; Philippine investment opportunities; methods of flotation of corporation bonded indebtedness. Third Year. Banking and Finance Majors.

3 hours a week; first semester, credit 3 units.

Banking 107 (Bank 107); *CREDITS AND COLLECTIONS*.—A practical study of the factors entering into the granting of credits of the organization and operation of credit departments and their relation to the sales department; sources of information; analysis of legal remedies of creditors; compounding of obligations; etc. Fourth Year. Banking and Finance Majors.

3 hours a week; first semester, credit 3 units.

#### ACCOUNTING

Accounting 1 (Acctg 1); *INTRODUCTION TO ACCOUNTING*.—Development of the simple principles of accounting,—significance of debit and credit entries; origin of and necessity for various accounts; relation of statistics to accounting. Elementary lessons in single and double entry systems and the drawing of simple trial balances, profit and loss statements, and balance sheets. A prerequisite to all courses in accounting. First Year. Required of all commerce students.

3 hours a week; either semester, credit 3 units.

Accounting 2 (Acctg 2); *ELEMENTARY ACCOUNTING*.—Practice in the working out of business sets by single entry system with special emphasis on mathematical problems involved. Carrying same or similar sets through double entry system. Introduction and use of subsidiary books. Special emphasis will be laid on problems arising out of the periodic opening and closing of books of account. Prerequisite to further accounting courses. Second Year. Required of all commerce students.

3 hours a week; either semester, credit 3 units.

Accounting 3 (Acctg 3); *ELEMENTS OF CORPORATION ACCOUNTING*.—Discussion of theory and solution of the simpler problems of a corporation. Some of the topics taken up are: Records and accounts peculiar to a corporation; opening entries; entries to record change from a partnership to a corporation; voucher system; theories of the balance sheet and the profit and loss statement; their make-up, form and arrangement, etc. Prerequisites: Accounting 1 and 2. Second Year. Required of Commerce students.

3 hours a week; second semester, credit 3 units.

Accounting 4 (Acctg 4); *ACCOUNTING PROBLEMS*.—Deals with the solution of accounting problems arising in single proprietorships and partnerships. Special emphasis will be laid upon the preparation and

forms of balance sheets, manufacturing, trading, income, and profit and loss accounts. Elective. Third Year.

3 hours a week, first semester, credit 3 units.

Accounting 5 (Acctg 5); *ADVANCED ACCOUNTING PROBLEMS*.—A detailed discussion of the principles underlying capital, expense, replacement, depreciation, income, etc. Operating statements; solution of C. P. A. questions. Elective. Third year.

3 hours a week, second semester, credit 3 units.

Accounting 6 (Acctg 6); *PHARMACY ACCOUNTING AND BUSINESS ORGANIZATION AND PRACTISE*.—Essential principles of accounting, business organization, and operations, with special reference to the needs of pharmacy students. Required of all pharmacy students.

2 hours a week, second semester, credits 2 units.

Accounting 107 (Acctg 107); *AUDITING*.—Prerequisites: Accounting 1, 2, and 3. A course in the methods and procedure of auditing; duties and responsibilities of an auditor. Supplemented by practical work in auditing. Students will be required to visit the office of the Insular Auditor and report upon various assigned topics. Elective. Fourth Year. Accounting Majors.

3 hours a week, first semester, credit 3 units.

Accounting 108 (Acctg 108); *PRINCIPLES OF COST ACCOUNTING*.—Prerequisites: Accounting 1, 2, and 3. This course is designed to prepare the student to meet the ordinary requirements of Cost Accounting. Cost accounting systems of public institutions will be inspected whenever practicable. A more detailed and advanced study of the subject may be arranged on consultation with the Head of the Department. Elective. Fourth Year. Accounting Majors.

3 hours a week, second semester, credit 3 units.

Accounting 9 (Acctg 9); *INTRODUCTION TO STATISTICS*.—History and development of statistical science; relation of statistics to accounting; tabulation and averages; graphic method; accuracy; the laws of error; theory of correction; application to local problems. Required of commerce students. Third Year.

3 hours a week, second semester, credit 3 units.

Accounting 10 (Acctg 10); *COMMERCIAL OPERATIONS*.—Advanced problems involving compound interest and annuities, such as amortization and valuation of different classes of bonds, problems in connection with building and loan associations, etc. Required of commerce students. Third Year.

Prerequisite: Mathematics 2 or its equivalent.

3 hours a week, first semester, credit 3 units.

Accounting 111 (Acctg 111); *GOVERNMENT ACCOUNTING*.—This course includes a study of the accounting laws and regulations in force in the Philippine Islands and the practical application of the accounting methods and procedure adopted in the Philippine Islands for the Insular, Provincial, and Municipal Governments with their varied activities.

3 hours a week, first semester, credit 3 units.

Accounting 112 (Acctg 112); *GOVERNMENT AUDITING*.—Government auditing includes the examination of all accounts to satisfy that all money collected has been correctly made and duly accounted for, and all payments are being made or have been in accordance with and in pursuance of appropriations authorized by law. It includes also the detection of irregularities and frauds and the issuance of necessary auditing requirements to prevent, if possible, the commission of irregularities and frauds. Elective.

3 hours a week, second semester, credit 3 units.

#### SENIOR THESIS

[Required of Commerce Seniors]

Open to others who are qualified in the judgment of the head of the department. Essay must be on a restricted subject connected with some special work of the department. The following lines of inquiry are suggested, but others may be approved: (1) Surveys of provinces, towns, islands, or other restricted areas. (2) Special studies of particular industries from an economic view-point. (3) Special studies of particular trades, occupations, jobs, or businesses. (4) Possibilities of new developments in business or industry. (5) Studies of groups of related industries or minor products. (6) Studies in economic theory, history, business law, or ethics, transport or marketing. (7) Accounting subjects. (8) Studies in finance, private or public. (9) Studies on detailed points of Economic Theory.

These subjects should as far as possible be submitted to the instructor in charge or the head of the department before the end of the previous school year. They must be approved before students enter the class. As a general rule, no change of subject is allowed, but exceptions may be made for cause. Detailed directions will be issued for preparing the work, which must be closely followed.

One hour a week, throughout the year; credit 2 units.

#### GRADUATE COURSES

##### COURSES FOR GRADUATES AND UNDERGRADUATES

Economics 105, 113, 114, 116, 118, 119, 120.

Accounting 107, 108, 111, 112.

Banking 101, 102, 106, 107.

All courses intended for both graduates and undergraduates are numbered from 101 to 200. Extra work is assigned to graduates.

##### COURSES PRIMARILY FOR GRADUATES

(Specially qualified undergraduates may be admitted on application to the head of the department.)

Economics 201, 202, 203, 204, 205, 206, 207, 208, 211.

All courses intended primarily for graduates are numbered from 201 to 300.

#### THE M.S. IN COMMERCE COURSE

Graduate Courses in Commerce, leading to the degree of Master of Science in Commerce, are intended to give advanced professional and cultural training. Spanish may be substituted for French or German as the required foreign language. This substitution opens the graduate work to

the graduates of our regular commerce courses, and enables working students to take the entire course in the evening.

The minimum time for this degree is one full year in residence. But working students are advised to take the course in two years. The total hours required for this degree number thirty, of which ten must be earned by the M.A. Thesis. Twenty hours of graduate class-work must also be taken, at least six hours of which must be one department other than economics. Admission is granted only by application to the graduate committee, which must be filled out in consultation with the graduate adviser of the department.

#### THE M.A. (MAJOR IN ECONOMICS) COURSE

French or German is required for this course. Otherwise the requirements are the same as those for the M.S. in Commerce. Students who expect to teach, or to take advanced work abroad are advised to take this course rather than the M.S. in Commerce. Students should apply through the graduate adviser of the department.

**The M.A. (Minor in Economics).** Students who intend to minor in Economics should consult the graduate adviser of this department before filling out their applications.

**NOTE.**—Since a grade of 2 or better is required for any graduate credit, students are warned against trying to carry a heavy schedule.

#### GRADUATE COURSES

**Economics 201 (Econ 201); ADVANCED ECONOMIC THEORY.**—Careful analysis of Marshall's theory of value, markets and economic laws. Outside readings and reports. Special notebook work. Attempt at application of these theories to, and correction for, Philippine conditions. Thorough review of elementary principles.

2 hours a week, first semester, credit 2 units.

**Economics 202 (Econ 202); SEMINAR IN FINANCE.**—This is strictly a research course. Any bank, school, firm, or other institution with a financial side may be treated. In case a very small organization is treated, the work must be in great detail.

Seniors with a suitable record and economic majors of the College of Education may be admitted. Others with suitable qualifications should apply to the head of the Department. Hours to be arranged with Professor in charge.

Either semester, credit 3 units.

**Economics 203 (Econ 203); INVESTIGATION OF SELECTED ECONOMIC TOPICS.**—This course will give the student the opportunity to investigate topics of particular importance to himself. Hours to be arranged with professor in charge.

Either semester, credit 3 units.

**Economics 204 (Econ 204); LABOR LEGISLATION.**—A study of the different labor laws of America and Europe and the labor legislation needed in the Philippines.

2 hours a week, second semester, credit 2 units.

**Economics 205 (Econ 205); SEMINAR IN TRADE AND TRANSPORTATION.**—An advanced study of problems growing out of local conditions.

3 hours a week, second semester, credit 3 units.

Economics 206 (Econ 206); *PHILIPPINE CURRENCY SYSTEM*.—A detailed analysis of the history and working of the system, with reference to other similar systems.

2 hours a week, first semester, credit 2 units.

Economics 207 (Econ 207); *INTERNATIONAL TRADE AND TARIFF PROBLEMS*.—Treats of international trade and international values, wages and prices with regard to international trade. Effect produced on international exchange by duties on exports and imports. Advantages and disadvantages of free trade and protective tariff.

2 hours a week, second semester, credit 2 units.

Economics 208 (Econ 208); *INTERNATIONAL BANKING*.—Deals with public debts; debtor and creditor countries—their relation to each other; sales of securities affecting banking transactions. Foreign securities and their relation to banking. Shipment of gold in and out of the country.

2 hours a week, first semester, credit 2 units.

Economics 211 (Econ 211); *THEORY OF VALUE*.—History of the idea, of value—different meanings and treatments of the idea-differences in theory made necessary for different social conditions; marginal theory of value; Austrian school; Review of works of Jevons and Gide on the subject; Marginal theory and its application to Modern Business (Marshall) and to Labor Problems (Commons).

3 hours a week, second semester, credit 3 units.

#### M.A. THESIS

This work is intended to conform to the requirements of the graduate committee. It must contain original matter not before published, or else such arrangement and discussion of old materials as to constitute a contribution to knowledge on the subject chosen. Subjects should be submitted for approval to the department head before the end of the previous year if possible. The thesis must be submitted—free from errors, typed and unbound, by February 16 of the year in which the student expects to graduate.

### DEPARTMENT OF ENGLISH

Professor H. P. SCOTT (Head); Associate Professors: A. VITERBO, C. P. ROMULO, C. V. WICKER, E. THOMAS; Assistant Professors: E. QUIRINO, L. B. JOHNSON, C. JAMIAS, P. M. BENITEZ, V. M. HILARIO; Instructors: E. CHAMBERLAIN, M. AGONCILLO, L. J. FARNSWORTH, J. M. SCOTT, J. B. MERRIMAN

The courses offered by the Department of English are designed to give the student a thorough knowledge of the whole range of English, American and Filipino literature and to develop as far as possible his ability to use the English language. Although the work is divided into courses in expression and courses in literature, no student should confine his elections to either of the two divisions. He can never become an effective writer or speaker without some study of literature, nor can he really understand literature until he has had considerable practice in writing.

Students interested primarily in expression should take at least Courses 1, 3, 6, 8, 9, and as many as possible of the following: 101, 102, 106, 107, 111, 114, 116, 123, 124, 230.

Students interested primarily in literature should elect at least Courses 1, 3, 8, 9, 107, 116, and as many as possible of the following: 117, 120, 121, 122, 123, 124, 203.

Students preparing for journalism should take Courses 1, 3, 8, 9, 108, 109, 110, and other courses in writing and literature for which they have time.

#### OUTLINE OF COURSES IN ENGLISH

	First semester	Second semester
First year.....	1 (y).....	1(y), 6(s).
Second year.....	3 (y), 6(s), 7(s), 8(s).....	3(y), 6(s), 7(s), 9(s).
Third and fourth years.....	Writing: 111(y or s). Speaking: 101(s), 114(s). Journalism: 108(y), 109(s), 110(s). Literature: 107(s), 116(s), 120(s), 122(s).	Writing: 106 (s), 111(y or s). Speaking: 102(s), 114(s). Journalism: 108(y), 109(s), 110(s). Literature: 107(s), 117(s), 121(s), 123(s), 124(s).
Graduate.....	203(s), 230(s).....	203(s), 204(s), 205(s), 230(s).

NOTE.—(y) means throughout the year; (s) means one semester.

#### COURSES PRIMARILY FOR UNDERGRADUATES

English 1 (Engl 1); *COMPOSITION*.—A course intended to perfect students in the mechanics of writing. The work consists in the study of principles and correct forms, in the writing and revising of themes, and in collateral reading.

Prescribed for all regular first-year students in the Colleges of Liberal Arts, Education, Engineering and Pharmacy, and prerequisite to all other courses in English.

3 hours a week (Class); throughout the year, credit 6 units.

English 3 (Engl 3); *SURVEY OF ENGLISH LITERATURE*.—A brief study of the several periods of English literature. Reading in each period. Lectures, discussions, reports and quizzes.

3 hours a week (Class); throughout the year, credit 6 units.

English 6 (Engl 6); *CONVERSATIONAL ENGLISH*.—A course intended to improve the student's speech. Oral work in class, with special attention to diction, pronunciation and intonation. Outside reading to serve as a basis for work in class. May be taken for credit only by freshmen who have passed the first semester of English I, and by sophomores. Class limited to fifteen.

3 hours a week (Class); either semester, credit 3 units.

English 7 (Engl 7); *SCIENTIFIC EXPOSITION*.—A study of the principles of exposition, with special reference to the needs of scientific and professional students. Analysis of specimens of technical writing and popular exposition. Practice in writing essays, especially reports.

Prescribed for all regular sophomore students in the College of Engineering.

2 hours a week (Class); either semester, credit 2 units.

English 8 (Engl 8); *ESSAY WRITING*.—A course in the rhetoric of description and exposition, devoted to study of principles and to the writing of essays. Outside reading required.

3 hours a week (Class); either semester, credit 3 units.

English 9 (Engl 9); *ARGUMENTATION*.—A course in the rhetoric of argumentation, devoted to the study of principles, the making of briefs and the writing of arguments. Outside reading required.

3 hours a week (Class); either semester, credit 3 units.

Any of the courses numbered 106, 107, 109, 110, 111, 116, 117, 120, 121, 122, 123, and 124 may be taken for graduate credit by a graduate student who has not taken them as an undergraduate, provided that the student be required to do such extra work as will satisfy the Department of English.

English 101 (Engl 101); *PUBLIC SPEAKING*.—A study of the principles of effective speaking from the point of view of composition; a study of the types of occasional addresses, with an inquiry into the devices of emphasis in oral composition. Class limited to twenty students.

Prerequisites: English 1, and either 3, 8, or 9.

3 hours a week (Class); first semester, credit 3 units.

English 102 (Engl 102); *SPEECH WRITING*.—Continuation of Course 101. A study of great English and American speeches, with special attention to the effective devices used therein. Two long speeches are to be composed and delivered by each student, in addition to shorter talks.

Prerequisites: English 1, and either 3, 8, or 9.

3 hours a week (Class); second semester, credit 3 units.

English 106 (Engl 106); *ADVANCED RHETORIC*.—A course both analytical and practical, in which the student not only studies the form and the principles of writing, but also writes comparatively long themes and brings them as close as may be to perfection. A special effort is made to discover literary aptitude and to direct it into the field where it can best show itself.

Prerequisites: English 1, 3, and either 8 or 9.

3 hours a week (Class); second semester, credit 3 units.

English 107 (Engl 107); *AMERICAN LITERATURE*.—A survey of American literature to the close of the Nineteenth Century, with reading and study of the chief writers.

3 hours a week (Class); either semester, credit 3 units.

English 108 (Engl 108); *NEWS WRITING*.—A study of the modern newspaper, with practice in the writing of the news-story, the interview, and the human-interest story. Problems involving the law of libel and the ethics of journalism.

Prerequisites: English 1, 3, and either 8 or 9.

3 hours a week (Class); throughout the year, credit 6 units.

English 109 (Engl 109); *ADVANCED NEWS WRITING*.—A continuation of Course 108. Partly laboratory work. In addition to classroom work, arrangements may be made for students to serve on Manila

papers, or they may be required to prepare copy for the *Collegian*. May be repeated for credit.

3 hours a week (Class); either semester, credit 3 units.

English 110 (Engl 110); *EDITORIAL WRITING*.—A study of editorial articles, or "leaders," their kinds and purposes. Outside reading in books, magazines, and newspapers; practice in the writing of editorials.

Prerequisites: English 1, 3, and either 8 or 9.

3 hours a week (Class); either semester, credit 3 units.

English 111 (Engl 111); *THE SHORT STORY*.—Practice in the writing of short-stories, together with a study of the principles of narration as applied in short-story writing and of the short-story as a literary form.

Prerequisites: English 1, 3, and either 8 or 9.

3 hours a week (Class); either semester or both credit 3 or 6 units.

English 114 (Engl 114); *PLAY PRODUCTION*.—A course in which students study and produce plays. Training in acting and directing. Students are also given opportunity to write plays for the class, and aided in the writing. Two class hours a week and one laboratory period of two hours. Class limited to 15 students.

Prerequisites: nine units in English.

3 hours a week (Class); either semester, credit 3 units.

English 116 (Engl 116); *FILIPINO LITERATURE*.—A study of the literature of the Philippine Islands, both oral and written. Mainly devoted to literature in the native languages. (Identical with Anthropology 116.).

3 hours a week (Class); first semester, credit 3 units.

English 117 (Engl 117); *ORIENTAL FOLKLORE*.—A study of the myths, fables, and legends of southern and eastern Asia and the Oceanic Islands. Lectures, outside reading, and reports. (Identical with Anthropology 117.)

3 hours a week (Class); second semester, credit 3 units.

*ADVANCED COURSES IN ENGLISH LITERATURE*.—Courses 120 to 124 inclusive are period courses intended to give the student a closer acquaintance with literature in English than can be gained from Course 3. Each course includes, besides lectures, somewhat intensive reading from leading writers of its period, with reports and quizzes thereon. These courses are offered both as general culture courses and as preparation for the teaching of English literature. They must be preceded by Courses 1 and 3.

English 120 (Engl 120); *CHAUCER TO SHAKESPEARE*.—The English Renaissance.

3 hours a week (Class); first semester, credit 3 units.

English 121 (Engl 121); *MILTON TO JOHNSON*.—The Age of Classicism.

3 hours a week (Class); first semester, credit 3 units.

English 122 (Engl 122); *WORDSWORTH AND HIS CONTEMPORARIES*.—The Romantic Revival.

3 hours a week (Class); first semester, credit 3 units.

English 123 (Engl 123); *THE VICTORIANS*.

3 hours a week (Class); second semester, credit 3 units.

English 124 (Engl 124); *CONTEMPORARY WRITERS IN ENGLISH*.

3 hours a week (Class); second semester; credit 3 units.

#### GRADUATE COURSES

The following courses are open only to students who have completed an undergraduate major in English. For undergraduate courses that may be taken for graduate credit under certain circumstances, see note just above the description of Course 101.

English 203 (Engl 203); *SHAKESPEARE*.—A study of his life, but especially of his works. Intensive reading and discussion of his greatest plays and a rapid reading of the others.

3 hours a week (Class); either semester, credit 3 units.

English 204 (Engl 204); *THE CONTEMPORARY DRAMA* (Offered when especially announced).—A general course in the drama. Translations used where necessary and available. Readings, discussions, and reports.

3 hours a week (Class); second semester, credit 3 units.

English 205 (Engl 205); *THE ENGLISH NOVEL* (Offered when especially announced).—Lectures on the development of the English novel. Extensive reading, discussion, reports.

3 hours a week (Class); second semester, credit 3 units.

English 230 (Engl 230); *GRADUATE RHETORIC*.—A course intended for students who wish to write original essays, stories, poems, or plays as preparation for professional writing. Lectures on rhetorical principles and literacy genres, and discussion of manuscripts submitted. Each student is expected to produce eight or ten manuscripts during the semester. Hours to be arranged after enrollment. The course may be repeated for credit.

Either semester, credit 3 units.

### DEPARTMENT OF FRENCH

Assistant Professor ANGELA B. DE LA CANTERA, Instructor CECILIO LOPEZ

French 1 (Fren 1); *ELEMENTARY GRAMMAR AND COMPOSITION*.—Reading and translation of easy French prose.

3 hours a week (Class); throughout the year, credit 6 units.

French 2 (Fren 2); *INTERMEDIATE FRENCH*.—Second part grammar and composition—sight translation and conversations.

3 hours a week (Class); throughout the year, credit 6 units.

French 101 (Fren 101); *REVIEW OF ADVANCED GRAMMAR*.—Sight reading and translations of best modern authors—lectures on French literature.

3 hours a week (Class); throughout the year, credit 6 units.

French 201 (Fren 201); *ADVANCED FRENCH COMPOSITION, HISTORY OF FRENCH LITERATURE*.—Lectures on the French “Auteurs Classiques” and poetry. May be taken by graduate students.

3 hours a week (Class); throughout the year, credit 6 units.

**DEPARTMENT OF GEOLOGY AND GEOGRAPHY**

**Dr. JOSE M. FELICIANO**, Assistant Professor and Acting Head, Mr. CORNELIO CRUZ (on leave).

Professorial Lecturer: Rev. Dr. MIGUEL SELGA.

Lecturers: Dr. LEOPOLDO A. FAUSTINO, Mr. ANTONIO D. ALVIR.

**Physiography 1 (Phsg 1).** The surface features of the earth, treated with special reference to their origin and significance; agencies affecting changes in geographic features; physiographic changes in progress as applied to the Philippines. The course includes a brief consideration of the element of Meteorology and Oceanography. Occasional field trips on Saturdays. Lectures, recitations, references, and reports. Open to all students particularly to those who are taking the Commerce and Teacher's Course.

Textbook: Tarr and Martin, College Physiography.

3 hours a week (Class); throughout the year, credit 6 units.

**Geology 1 (Geol 1); GENERAL GEOLOGY.**—A general course involving a study of geological processes with special emphasis on those which have been important in the geological history of the Philippine archipelago. Occasional field trips on Saturdays to train the students in the recognition and interpretation of geological phenomena. Open to all students, primarily for those preparing to teach and those majoring in Science.

Required of all Chemistry students.

Lectures, recitation, reference, and reports.

Textbook: Chamberlain and Salisbury, Geology.

3 hours a week (Class); throughout the year, credit 6 units.

**Geology 13 (Geol 13); MINERAL RESOURCES.**—An elementary course including (1) a consideration of the mineral resources of the United States and the Philippine Islands, and of foreign deposits which contribute largely to our mineral supplies; (2) a study of their importance in the industrial life of the nations; some consideration is given to the geologic conditions under which deposits of economic value are found: (3) a brief study of the common minerals of economic importance; (4) excursions to points of economic interest in and about Manila.

Textbook: Economic Aspects of Geology by Leith.

3 hours a week (Class), and occasional laboratory and field trips; first semester, credit 3 units.

**Geology 103 (Geol 103); GENERAL GEOLOGY FOR ENGINEERING STUDENTS;** (Prerequisite: Chemistry 25 or 27 or equivalents).—A general course covering general and economic geology and the elements of mineralogy; consisting of lectures, laboratory periods, recitations, and occasional field trips.

7 hours a week (Lecture, class, laboratory); either semester, credit 3 units.

**Geology 104 (Geol 104); ENGINEERING GEOLOGY** (Prerequisite: Mineralogy or equivalents).—A short course especially adapted to meet the needs of students of engineering.

Textbook: Ries and Watson, Engineering Geology.

3 hours a week (Class); second semester, credit 3 units.

Geology 105 (Geol 105); *FIELD GEOLOGY* (Place will be announced later).—Problems in physiography and stratigraphy, sedimentation, and intrusion (summer course), the work will continue for four weeks after which the report will be written. Prerequisite: Geology 1, credit 3 units.

Geology 115 (Geol 115); *HISTORICAL GEOLOGY* (Prerequisite: Geology 1).

Textbook: Chamberlin and Salisbury, *Geology*, Vols. 2 and 3, or Pirsson and Schuchert, *Textbook of Geology*, Part II, *Historical Geology*.

3 hours a week (Class); throughout the year, credit 6 units.

Geology 120 (Geol 120); *PETROLEUM GEOLOGY*.—A course intended to familiarize the student with (1) the stratigraphy and structural conditions of producing oil and gas fields of the United States and the Philippine Islands; (2) the methods of work employed in investigating, producing, prospective oil fields; (3) the organization and presentation of field data in the form of reports. A brief description of the methods of oil production and control of wells will be included. Prerequisite: Geology 1.

Textbook: *Geology of Petroleum* by W. H. Emmons.

3 hours a week (Class); first semester, credit 3 units.

Geology 121 (Geol 121); *SYSTEMATIC PALEONTOLOGY AND TERtiARY CONCHOLOGY*.—A study of invertebrate fossils, their classification, and their geologic and geographic distribution with special emphasis on Philippine materials. Primarily intended for students specializing in Geology, Geography, and Biology.

9 hours a week (Lectures, Recitation, and Laboratory); throughout the year, credit 10 units.

Geology 123 (Geol 123); *MINERALOGY* (Prerequisite: Chemistry 25 or 27 or their equivalents).—Lecture and laboratory work. Includes a detailed study of the chemical and physical properties of common rock-making minerals and some of the rarer minerals of economic importance; blowpipe analysis. (Primarily for chemistry and general B. S. courses.)

Textbook: Brush C. Penfield, *Manual of Determinative Mineralogy and Blowpipe Analysis*.

6 hours a week (Laboratory and Class); either semester, credit 3 units.

Geology 140 (Geol 140); *PRINCIPLES OF STRUCTURAL AND DYNAMIC GEOLOGY*.—A study of the principles and theories of earth diastrophism and rock deformation. Rock structures, the mechanics of their origin, their interpretation, and their application to the solution of other geologic problems. Prerequisite: Geology 1; Descriptive Geometry.

Textbook: *Structural Geology* by C. K. Leith.

3 hours a week (Class); second semester, credit 3 units.

Geology 205 (Geol 205); *ECONOMIC GEOLOGY* (Prerequisite: Geology 1 and 123).—The nature, occurrence, and origin of metalliferous deposits. Theories of ore deposition. Lectures, recitations, references, and reports. Senior College course.

Textbook: Ries, *Economic Geology*.

3 hours a week; second semester, credit 3 units.

Geology 241 (Geol 241); *OPTICAL MINERALOGY*.—Lectures and laboratory work. Includes a review of the principles of optic as applied to the petrographic microscope, the use of the microscope and other apparatus, and descriptions of rock-forming minerals, with a study of their associations and alterations. Prerequisite: Geology 103 or equivalents.

9 hours a week (Lecture, Class, and Laboratory); first semester, credit 5 units.

Geology 250 (Geol 250); *RESEARCH IN ECONOMIC GEOLOGY*.—Research upon problems relating to metallic or non-metallic mineral deposits. May form the basis for dissertation. May be elected more than once to cover different researches. Prerequisites: Geology 140 and 205. Registration only after consultation with the instructor. Credit depends upon work done, but will not be more than 3 units per semester.

## METEOROLOGY AND ASTRONOMY

Rev. Dr. MIGUEL SELGA

Meteorology 11. This course is intended to impart to the student a general knowledge of the principles of Meteorology. The observation, computation, and interpretation of the atmospheric pressure, temperature, moisture, and circulation are considered in detail and numerous instruments are available for their observation. Extraordinary emphasis is laid on the investigation of tropical cyclones and typhoons. Special attention is paid to the study of atmospheric optics and electricity. The relations of climate to health, human efficiency, colonization, agriculture, and forestry are investigated. Special applications are made to local problems in the Philippines.

Textbook: Melham, Meteorology or Davis, Elementary Meteorology.

3 hours a week (Class); throughout the year, credit 6 units.

Astronomy 111 (Astr 111); *GENERAL ASTRONOMY*.—Astronomical coördinates. Determination of the fundamental problems of practical Astronomy, latitude, time, longitude, and azimuth. Computation of the dip of the horizon, parallax, semidiameter, refraction, and aberration. Study of the main astronomical instruments; refracting and reflecting telescopes, clocks, chronometers, chronographs, meridian circles, equatorials, sextants, spectrographs, and micrometers. Determination of the dimensions and form of the earth. The earth's mass and density. The orbital motion of the earth. Motion and physical features of the moon. Sun: rotation, internal constitution, light, heat, eclipses, horizontal parallax. Study of the motion and physical characteristics of each planet. Orbits and physical constitution of the comets. Stars: catalogues, light, spectral classification, proper motion, and radial velocity. Nebulae and clusters: catalogue, spectral characteristics, distance, and radial velocity. Structure of the universe.

*ASTROPHYSICS—SOLAR PHYSICS*.—The photospheric spectrum. Reversing layer. Solar temperatures. Sun's variability. The spectra of the cromosphere and prominences. Flash spectrum. Periodicity, drift, distribution, spectrum, vorticity, and magnetic field of sunspots. Solar constant; actinometers and pyrheliometers. Spectroheliometer. Maintenance of the solar heat. Hypotheses of Young, Halm, Schmidt, Julius, and Abbot as to the constitution of the sun.

**RADIAL VELOCITIES.**—Doppler's Principle Measurement and Reduction of Spectograms. Hartman's Spectrocomparator. Radial velocities of stars and nebulae.

**STELLAR PHOTOMETRY.**—Zollner photometer, Pickering meridian photometer, selenium photometer, and photo-electric cells. Visual and photographic magnitudes. Focal and extrafocal methods. Magnitude scales. Color-index. Variable stars. Hagen's catalogue. Classification of variable stars. Algol type variation. Cepheids-Novae.

Open to all students except the Freshmen.

Textbook: Young, General Astronomy.

3 hours a week; throughout the year, credit 6 units.

## GEOGRAPHY

Assistant Professor MARIA VALDEZ-VENTURA

Geography 101 (Geog 101); **COMMERCIAL AND INDUSTRIAL GEOGRAPHY.**—It is a brief study of the physical and economic principles underlying the centralization of industry and the geography of commerce. It includes a brief history of commerce, a description of the production and marketing of the principal agricultural products, and a study of the conditions which determine the geographical distribution of the centers of production and consumption of the leading products of the mines and of the forests; a study of the influences of the sources of raw material, means of transportation, population, etc., upon the location of the various kinds of manufacturing industries. The commercial policies of the United States and other important nations of the world are considered. Lectures, readings, and discussions.

Prerequisite: Physiography 1 or Geology 1.

Textbooks: Smith, J. Russell, Commercial and Industrial Geography; and Valdez, M. R., Outlines of a Course in Commercial and Industrial Geography.

3 hours a week; first semester, credit 3 units.

Geography 102 (Geog 102); **POLITICAL AND REGIONAL GEOGRAPHY OF THE PHILIPPINES.**—A detailed study of the political and regional divisions of the Philippines with special reference to their physiography, and the social and economic activities of their inhabitants. Readings and reports.

Prerequisite: Physiography 1 or Geology 1.

Textbooks: Valdez-Ventura and Villamor, Geography of the Philippines

3 hours a week; second semester, credit 3 units.

Geography 103 (Geog 103); **RELATIONS OF HISTORY AND GEOGRAPHY.**—This course is especially designed for those intending to teach history in the secondary schools. It is a general survey of the influence of physiography features on the migrations of man, on language, on war, and all other human movements that have influenced the history of nations. This course will be featured with the geography of the World War. Lectures, readings, and discussions.

Prerequisite: Physiography 1 or Geology 1.

Textbooks: George, *Relations of History and Geography*; supplemented by Freeman's *Historical Geography of Europe* and Herbertson's *The Senior Geography*.

3 hours a week, first semester, credit 3 units.

**Geography 105 (Geog 105); *THE NATURAL RESOURCES OF THE PHILIPPINES*.**—A study of the lands, waters, forests, and mines of the Philippines as factors of national development. Particular attention is given to the methods of exploitation, their administration, and conservation. Lectures, readings, and discussions.

Prerequisite: Physiography 1 or Geology 1.

3 hours a week; first semester, credit 3 units.

**Geography 106 (Geog 106); *PRINCIPLES OF HUMAN GEOGRAPHY*.**—The course aims to set forth the principles of geography in its human aspects; that is, the relation of the physiographic environment to man's activities. Among other phases of human geography it emphasizes the effects of climate, includes a study of vegetation and diet, and interprets political relationships, both domestic and foreign, which arise out of geographic conditions. Lectures and recitations. Elective for those who major in Geography.

Prerequisite: Physiography 1 or Geology 1.

Textbook: Huntington and Cushing, *Principles of Human Geography*.

3 hours a week, second semester, credit 3 units.

**Geography 107 (Geog 107); *MATHEMATICAL GEOGRAPHY*.**—A study of the earth in its simple mathematical aspects and its relation with the planets and other bodies of the solar system. Lectures and readings.

Prerequisite: Physiography 1 or Geology 1.

3 hours a week; first semester, credit 3 units.

**Geography 201 (Geog 201); *PROBLEMS IN POLITICAL GEOGRAPHY*.**—A study of the political and geographic as well as the historic and economic bases of the life of the different peoples and countries of the world, necessary for the understanding of the main international questions of the present. Readings and discussions.

Prerequisite: Geography 106.

3 hours a week; second semester, credit 3 units.

## GERMAN

Professor EMILIO NATIVIDAD (in charge)

**German 1 (Ger 1); *A FIRST YEAR COLLEGE COURSE IN GERMAN*.**—Pronunciation, grammar, easy readings, with practice in speaking and writing German.

3 hours a week (Class); throughout the year, credit 6 units.

**German 2 (Ger 2); *A PREPARATORY COURSE FOR THE READING OF LITERARY AND SCIENTIFIC AUTHORS*.**—Class and outside reading of selected texts. Grammar and written exercises continued.

Prerequisite: German 1.

3 hours a week (Class); throughout the year, credit 6 units.

German 104 (Ger 104); *SCIENTIFIC GERMAN*.—Study of German scientific authors of special interest to individual students. Works and monographs on medicine, chemistry, ethnography, etc., reading under guidance of the instructors.

Prerequisites: German 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

German 201 (Ger 201); *HISTORY OF GERMAN LITERATURE*.—This course is designed to introduce the students to the lives and works of the more important authors and to give an insight into the different epochs of German Literature.

Prerequisites: German 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

German 202 (Ger 202); *HISTORY OF THE GERMAN LANGUAGE*.—This course deals with the evolution of the German language from the earliest times to the present day.

Prerequisites: German 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

## DEPARTMENT OF HISTORY

[NOTE.—Social Science I is a prerequisite to all history courses or must be taken together with certain history courses.]

Professor FERNANDEZ (Acting Head); Associate Professor ENCARNACION ALZONA; Assistant Professor ZAFRA; Dr. SANTOS, Mr. FABELLA, Mr. PIATOS, and Mr. FONACIER

History 1 (Hist 1); *MODERN EUROPE, 1492-1815*.—This course will deal with the important political, economic, and intellectual achievements of the sixteenth, seventeenth, and eighteenth centuries. Due emphasis will be given to the various aspects of the "old régime," the French Revolution, and the era of Napoleon.

3 hours a week; first semester, credit 3 units.

History (Hist 2); *MODERN AND CONTEMPORARY EUROPE, 1815-1924*.—This course will treat of the Congress of Vienna, the industrial revolution, the development of Italian and German unities, the intellectual achievements of the nineteenth century, modern social problems, imperialism in Africa and the Orient, and the World War.

Prescribed in the first year of the Preparatory Law course.

Text: Hayes' A Political and Social History of Modern Europe, Vol. II (Macmillan, 1924).

3 hours a week; either semester, credit 3 units.

History 107 (Hist 107); *ANCIENT CIVILIZATION*.—A brief survey of the contributions of the ancient world to European civilization, the development of the political, social, and economic life of the Greek people, and the growth of the Roman system of government.

3 hours a week; first semester, credit 3 units.

History 108 (Hist 108); *MEDIEVAL CIVILIZATION*.—A brief survey of the contribution of the Middle Ages to European Civilization, the Feudal

system, the Christian Church, the Holy Roman Empire, the rise of national states, the Renaissance, and the Reformation.

3 hours a week; second semester, credit 3 units.

History 203 (Hist 203); *EUROPE AND THE GREAT WAR*.—Among the specific topics which will be discussed are the rise and the fall of the German Empire, imperialism and World politics, in the nineteenth and twentieth centuries, and the World War.

3 hours a week; first semester, credit 3 units.

#### PHILIPPINE HISTORY

History 115 (Hist 115); *ANCIENT PHILIPPINES*.—This course will deal with the history of the Philippines before the discovery by Magellan, the relationship between this Archipelago and the neighboring countries, and the social, political, and religious conditions in pre-Spanish times.

3 hours a week; first semester, credit 3 units.

History 4 (Hist 4); *PHILIPPINE HISTORY*.—From the discovery by Magellan to the British Occupation. A brief review of the condition existing in pre-Spanish times, the discovery and conquest, the changes introduced by the Spaniards, the Filipino rebellions of the seventeenth century, the Spanish colonial policy, and the conflict between the State and the Church.

No text is used, but extensive reading in Blair and Robertson's, *The Philippine Islands* is required.

3 hours a week; first semester, credit 3 units.

History 5 (Hist. 5); *PHILIPPINE HISTORY*.—Philippine history, with due emphasis on the political, social and economic progress of the Philippines during the nineteenth century. The introductory part of this course is devoted to a rapid survey of early Filipino civilization and Philippine conditions in the early years of Spanish rule, to be followed by a consideration of the outstanding incidents and developments of the eighteenth century. The remaining part takes up such matters as Philippine representation to the Spanish Cortes, opening of the Philippines to foreign countries, economic and political progress, the propaganda movement, and the outbreak of the Philippine Revolution.

Prescribed in the second year Preparatory Law course. Text: Zafra, *Outlined Readings in Philippine History*.

3 hours a week; either semester, credit 3 units.

History 109 (Hist 109); *THE PHILIPPINE REVOLUTION*.—An intensive course based on primary sources, and supplemented by a few well-known secondary authorities.

Prerequisites: History 4 or 5, and reading knowledge of Spanish.

3 hours a week; second semester, credit 3 units.

History 111 (Hist 111); *HISTORY OF EDUCATION IN THE PHILIPPINES*.—The evolution of educational practices and institutions in the Philippines. This course is identical with Education 10.

3 hours a week; second semester, credit 3 units.

History 205 (Hist 205); *PRACTICUM IN PHILIPPINE EDUCATIONAL HISTORY*.—Intensive study of educational conditions and prac-

tices from primary sources. (Open only to graduate students.) Formerly History 300.

Prerequisites: History 4 or 5 or 9, and reading knowledge of Spanish.  
3 hours a week; throughout the year, credit 6 units.

History 201 (Hist 201); *RESEARCH IN CHURCH HISTORY*.—Intensive study of Philippine religious conditions from primary sources, with particular emphasis on the work of the religious orders, the strife between State and Church, and its effects. (Open only to graduate students.)

Prerequisites: History 4 or 5 or 9, and reading knowledge of Spanish.  
3 hours a week; second semester, credit 3 units.

#### UNITED STATES HISTORY

History 25 (Hist 25); *UNITED STATES HISTORY, 1492-1829*.—A brief survey of the history of the colonies, the Revolution, the Constitution, and the growth of nationality.

Text: Hockett, H. C., *A Political and Social History of the United States*, Vol. I.

3 hours a week; first semester, credit 3 units.

History 26 (Hist 26); *UNITED STATES HISTORY, 1829-1925*.—A study of the slavery controversy, the Civil War, the reconstruction, and national growth and expansion.

Text: Schlesinger, A. M., *A Political and Social History of the United States*.

3 hours a week; second semester, credit 3 units.

History 127 (Hist 127); *THE AMERICAN REVOLUTION*.—An intensive study of the colonists' struggle for political independence.

Prerequisite: History 25 or 26.

Texts: Lecky's *American Revolution* (Woodburn edit.), Howard's *Preliminaries of the Revolution*, and Van Tyne's *The American Revolution*.

3 hours a week; first semester, credit 3 units.

History 128 (Hist 128); *THE AMERICAN CIVIL WAR*.—An intensive study of the Slave Controversy, State Sovereignty, and the constitutional and political aspects of the war.

Prerequisite: History 25 or 26.

Text: Rhodes' *History of the United States, 1850-1875*.

3 hours a week; second semester, credit 3 units.

History 129 (Hist 129); *AMERICAN IN THE FAR EAST*.—An intensive study of America's expansion to the Far East, the acquisition of the Philippines, the "open door doctrine," the Philippine question, and the various aspects of American-Japanese relations.

Texts: A guide to representative authorities will be furnished students taking the course.

3 hours a week; first semester, credit 3 units.

#### ORIENTAL HISTORY

History 6 (Hist 6); *ORIENTAL HISTORY*.—Brief survey of the modern history of India, China, Japan, Korea, etc., and their European associations.

3 hours a week; either semester, credit 3 units.

History 8 (Hist 8); *CONTEMPORARY ORIENTAL PROBLEMS*.—Lectures, readings, and recitations.

3 hours a week; second semester, credit 3 units.

History 130 (Hist 130); *ANCIENT CIVILIZATION OF CHINA*.—A discussion of ancient Chinese institutions, religious, social, and political. The attempt is to give the students the basic elements of Chinese civilization.

3 hours a week; first semester, credit 3 units.

History 131 (Hist 131); *CONTEMPORARY CHINA*.—The Boxer Rebellion, the agitation for the constitution, the fall of the Manchus, the Republic, the Civil War, China's role in the European War, and present-day Chinese problems.

3 hours a week; second semester, credit 3 units.

History 132 (Hist 132); *CONTEMPORARY JAPAN*.—The fall of the Shogunate, the rise of constitutionalism, the Chino-Japanese War, the acquisition of Formosa, the Anglo-Japanese Alliance, the Russo-Japanese War, the annexation of Korea, the Manchurian question, Japan in the European War, and present-day Japanese problems.

3 hours a week; second semester, credit 3 units.

History 133 (Hist 133); *MODERN HISTORY OF INDIA*.—A brief survey of the British rule in India starting from the battle of Plassey to the beginning of the home-rule movement.

3 hours a week; first semester, credit 3 units.

History 134 (Hist 134); *THE MINOR ORIENTAL COUNTRIES*.—A brief survey of the histories of the minor Oriental countries in the continent, laying emphasis on Siam, Persia, Nepal, Afganistan, Indo-China, and Malay Peninsula.

3 hours a week; second semester, credit 3 units.

History 121 (Hist 121); *METHOD OF TEACHING HISTORY*.—A brief discussion of the methods of teaching history prevalent in various countries, especially France, Germany, England, United States, Japan, and the Philippines, including a study of the various class room devices employed. Designed primarily for those who are preparing to teach history.

Texts: Johnson's Teaching of History and Tryon's The Teaching of History in Junior and Senior High Schools.

3 hours a week; throughout the year, credit 6 units.

## LIBRARY SCIENCE

GABRIEL A. BERNARDO, Assistant Professor and Head of the Department; Miss NATIVIDAD B. POLINTAN, Instructor; RICHARD C. McGREGOR, Lecturer; CIRILO B. PEREZ, Lecturer; ISIDORO SANIEL, Lecturer; from College of Education, Mrs. LOIS OSBORN, Associate professor.

Library Science 8 (LibSc); *SCHOOL LIBRARIES I*.—Elementary technical methods. Simple methods in accessioning; shelf listing; classifying; cataloguing; subject heading work; loan systems; other routine work necessary for the preparation of books for the shelves in a very small library.

This course is designed to enable students, who cannot take the regular course, to acquire a general idea of the technical side of library work.

3 hours a week (Class); second semester, credit 3 units.

Library Science 9 (LibSc 9); *SCHOOL LIBRARIES II*.—The organization and management of school libraries. The selection of books and periodicals; buying of books; aids in reference work; furniture and equipment; making and use of clippings and picture collections; lessons in the use of books and libraries for school students.

3 hours a week (Class); first semester, credit 3 units.

Library Science 8 and 9 are not open to students taking the four-year vocational course for the degree of Bachelor of Philosophy in Library Science, College of Liberal Arts, nor to students majoring in library science in the College of Education. Recommended to students minoring in library science in the College of Education.

Library Science 12 (LibSc 12); *USE OF BOOKS AND LIBRARIES*.—Introductory study of reference books and library methods as applied to individual study and research; classification and arrangement of books in the library; the card catalogue; the more generally used reference books.

This course is intended for freshmen and sophomores, but other undergraduate students who are not taking the regular library science course in the College of Liberal Arts, or who are not taking library science as major or minor in the College of Education, will find it quite useful.

The aim of this course is to give practice in the use of books and indexes. It is intended to familiarize the student with the more important books of reference and to enable him to use these books with greater facility, intelligent use of books and catalogues being one of the greatest factors in a successful college career.

2 hours a week (Class); either semester, credit 2 units.

Library Science 21 (LibSc 21); *ELEMENTARY REFERENCE WORK*.—Practice in the use of library catalogues, general and special reference books, such as dictionaries, year-books, directories, periodicals, society publications, atlases, and maps. General lectures on the physical make-up of a book.

3 hours a week (Class); first semester, credit 3 units.

Library Science 22 (LibSc 22); *SUBJECT HEADINGS, AND LIBRARY ECONOMY CLASSIFICATION*.—Various systems of keeping the accession record with practice works in the various libraries in Manila. Withdrawal of books and the mechanical preparation of books for the shelves. A study of the general principles of classification with special reference to the Dewey and the Library of Congress systems of classification with a course in subject headings. This course includes introduction in shelf listing and the assignment of book numbers. Practice work in classification of books, shelf reading, and the taking of inventories.

3 hours a week (Class); first semester, credit 3 units.

Library Science 23 (LibSc 23); *ELEMENTARY CATALOGUING*.—Instruction in the general principles which underlie the making of a dictionary catalogue. Instruction in the use of Library of Congress catalogue

cards. Routine of the ordering and practice work in the typing of Library of Congress cards. Making of a simple catalogue such as would be used in public libraries. Continued work on subject headings. Practice Work in alphabetizing, filing and the use of the typewriter.

3 hours a week (Class); either semester, credit 3 units.

Library Science 24 (LibSc 24); *PRINTING AND INDEXING*.—Primitive and ancient records. The history and development of printing and illustrating. Modern processes involved in book making. Preparation of copy and proof reading. Binding and the care of books. Indexing and filing. Lectures with assigned reading; study of illustrative material; exercises in the preparation of copy and proof reading; visits to the Bureau of Printing for the study of mechanical equipment.

3 hours a week (Class); either semester, credit 3 units.

Library Science 26 (LibSc 26); *LIBRARY HISTORY*.—The history of the library movement in America. Famous men in the library world. History and resources of the famous libraries of Europe and the United States. Comparative studies of the library movement in various countries. Ancient libraries and their contents. Library associations and institutes.

2 hours a week (Class); first semester, credit 2 units.

Library Science 105 (LibSc 105); *LIBRARY PRACTICE* (under supervision and correction) in actual work in the library of the University or in other organized libraries in Manila which will afford the best experience. This actual library experience seeks to cover all phases of library routine, and enables the students to test the theories discussed in the class room.

Prerequisites: Library Science 21, 22, and 23.

3 hours a week (Practice); throughout the year, credit 6 units.

Library Science 107 (LibSc 107); *LIBRARY ADMINISTRATION*.—Library organization and legislation. Buildings and equipment. Discussion of administrative topics such as library finance, accounts, and budgets; statistics and reports; rules, regulations, and schedules. Practical printing of lists and reference aids. Library extension. Loan systems, traveling libraries, library publicity. Story-telling, work with the blind, and co-operation with schools.

3 hours a week (Class); second semester, credit 3 units.

Library Science 115 (LibSc 115); *BOOK SELECTION AND BOOK BUYING*.—A study of the more important tools in the field of subject and trade bibliography with the view of furnishing equipment for the selection of books for public and school libraries. Discussions upon publishers, book reviews, editions, etc. Practical work in order routine. Several periods will be devoted to standard literature for children and the directing of children's reading.

The aim of this course is to supply criterions for the student in judging literature and to acquaint him with the best editions of the great classics. Students are advised to take as many units in English and general literature before taking this course.

3 hours a week (Class); throughout the year, credit 6 units.

Library Science 116 (LibSc 116); *ADVANCED CATALOGUING*.—Continued practice in cataloguing. Advanced principles. Study of analy-

ticals, with practice work in the typing of analyticals upon Library of Congress cards. The organization and administration of cataloguing departments in large libraries. Cataloguing of music, manuscripts, serial and society publications, and foreign literature. Cataloguers' reference books.

Prerequisite: Library Science 23.

2 hours a week (Class); first semester, credit 2 units.

**Library Science 117 (LibSc 117); ADVANCED REFERENCE WORK.**—Further study of general and special reference books, periodicals, and periodical and newspaper indexes. Study of federal, state, and municipal documents and indexes to documents. Foreign official publications. Current events; newspaper indexes. Practical work in the preparation of subject bibliographies. Study of scientific reference books and indexes to scientific literature. Transactions of learned societies. International bibliographical institutions.

Prerequisite. Library Science 21.

3 hours a week (Class); second semester, credit 3 units.

## DEPARTMENT OF MATHEMATICS

Professors V. A. TAN (Head); V. D. GOKHALE; Associate Professor, RUTH McCACKEN; Assistant Professors, DELFIN DE LA PAZ, TELESFORO TIENZO; Instructors ENRIQUE VIRATA (on leave), F. PEREZ, R. GONZALEZ, B. C. BLANCO, P. PAGSOLINGAN, M. LACANDOLA, T. Y. TAN. Teaching fellow, T. ZAVALLA.

The courses offered by the Department of Mathematics are numbered as follows:

0 to 99 for under graduates only (Junior College Courses.)

101 to 199 Senior College Courses.

201 to 299 primarily for graduates.

The College of Liberal Arts offers undergraduate students a four-year college curriculum leading to the degree of B. S. with specialization in Mathematics. On graduation the students will be fitted (a) to undertake graduate study in Mathematics in the University of the Philippines, or American universities; (b) to fill superior positions in the secondary schools.

The required curriculum for such students comprises the work done in the following courses: Math 1, 4, 10, 21, 22, 105, 108, 111.

Students interested in this curriculum should consult the Head of the Department before registration.

**Graduate Courses.**—The Department offers a variety of courses from which a year's study may be chosen leading to a Master's degree. Students should consult the Head of the Department before registration.

**Mathematics A (Math A).**—Review of elementary Algebra and Geometry.

3 hours a week; one semester, *no credit*.

**Mathematics 0 (Math 0); SOLID GEOMETRY.**—Solid and Spherical Geometry. An elective course open to any student in the college of Liberal Arts.

3 hours a week; one semester, credit 3 units.

Mathematics 1 (Math 1); *COLLEGE ALGEBRA*.—Quadratics with Graphs; Progressions; inequalities; Complex Numbers; Permutations and Combinations; Binomial Theorem; Probabilities; Determinants, Theory of Equations.

3 hours a week; first semester, credit 3 units.

Mathematics 2 (Math 2); *THEORY OF INVESTMENT*.—Logarithms; Simple and Compound Interest; Annuities; Bonds. A required Course for Commerce students.

3 hours a week; second semester, credit 3 units.

Mathematics 4 (Math 4); *TRIGONOMETRY*.—Logarithms; Trigonometric Functions with Graphs; General Formulae; Solution of Triangles with Applications; Elements of Spherical Trigonometry with Applications to Astronomy.

3 hours a week; second semester, credit 3 units.

Mathematics 7 (Math 7); *ALGEBRA*.—Review of elementary algebra and geometry; variations and linear graphs and general graphs. (For premedical students only.)

3 hours a week, first semester, credit 2 units.

Mathematics 8 (Math 8); *ALGEBRA AND TRIGONOMETRY*.—Quadratic and polynomial graphs; indices and logarithms; trigonometric functions; solutions of right triangles; permutations and combinations; binomial theorem and probabilities. (For premedical students only.)

4 hours a week, second semester, credit 4 units.

Mathematics 10 (Math 10); *ANALYTIC GEOMETRY*.—Plane Analytics; Conic Sections; Graphs; Introduction to Solid Analytics. Required of students majoring in Mathematics.

5 hours a week; one semester, credit 5 units.

Mathematics 11 and 12 (Math 11 and Math 12); *ALGEBRA, TRIGONOMETRY, AND ANALYTIC GEOMETRY*.—A sequence of two one-semester courses combining parts of Math 1, 4, and 10 to suit the needs of engineering students. Required of first year engineering students.

5 hours a week; credit 5 units a semester.

Mathematics 13 (Math 13); *CALCULUS*.—A brief course in differential and integral calculus designed for education and science students.

5 hours a week; second semester, credit 5 units.

Mathematics 21 (Math 21); *CALCULUS I*.—Required of engineering students and students majoring in mathematics.

5 hours a week; first semester, credit 5 units.

Mathematics 22 (Math 22); *CALCULUS II*.—Required of engineering students and students majoring in mathematics. Prerequisite: Mathematics 21.

5 hours a week; second semester, credit 5 units.

Mathematics 105 (Math 105); *DIFFERENTIAL EQUATIONS*.—A first course dealing mainly with the more usual forms of Ordinary Differential Equations and with an introduction to Partial Differential Equations. Open to students who have had a year of calculus.

3 hours a week; first semester, credit 3 units.

Mathematics 108 (Math 108); *DEFINITE INTEGRALS*.—Properties and methods of computing Definite Integrals; Improper and Multiple Integrals; Eulerian Integrals, with an introduction to Gamma and Beta functions. Prerequisite: Differential Equations.

3 hours a week; second semester, credit 3 units.

Mathematics 111 (Math 111); *THEORY OF EQUATIONS*.—Graphs, solution of cubic equations; quartic equations; symmetric function; locations of roots; Horner's and Newton's methods of approximation to roots. Prerequisite: One semester of Calculus.

Textbook: Dickson's First Course in the Theory of Equations.

3 hours a week; second semester, credit 3 units.

Mathematics 115 (Math 115); *LIMITS AND SERIES*.—Open to qualified students.

3 hours a week; one semester, credit 3 units.

Mathematics 121 (Math 121); *ANALYTICAL MECHANICS*.—Prerequisite: Mathematics 21, and 22, and some College Physics.

5 hours a week; one semester, credit 5 units.

Mathematics 125 (Math 125); *MODERN GEOMETRY*.—An elementary study of projective geometry, including the Non-Euclidian. Prerequisite: Mathematics 105 or Mathematics 111.

3 hours a week; one semester, credit 3 units.

Mathematics 131 (Math 131); *ADVANCED CALCULUS*.—Rules for differentiation and integration, mean value theorems, Taylor's expansion, infinite series, implicit functions, definite Riemann integral, line and surface integrals. Prerequisite: Mathematics 105 or 111.

5 hours a week; one semester, credit 5 units.

Mathematics 151 (Math 151); *FUNDAMENTAL CONCEPTS OF MATHEMATICS*.—An elementary study based partly on Young's book on the subject. Primarily intended for education students. Prerequisite: One semester of Calculus.

5 hours a week; first semester, credit 5 units.

Mathematics 165 (Math 165); Elliptic Integrals and Functions. Reductions of elliptic integrals to their canonical forms and the elementary properties of elliptic functions. Prerequisite: Math 105.

3 hours a week; first semester, credit 3 units.

Mathematics 205 (Math 205); *PROJECTIVE GEOMETRY*.—An advanced course based on Veblen and Young's text. Prerequisite: Math 125.

5 hours a week; one semester, credit 5 units.

Mathematics 206 (Math 206); *INTRODUCTION TO THE THEORY OF RELATIVITY*.—Galilean and Lorenz Groups of Transformation; Space and Time; Special Theory of Relativity; Four-dimensional Space-Time; Dynamics; Introduction to the Generalized Theory. Prerequisite: Math 121.

5 hours a week; one semester, credit 5 units.

**Mathematics 215 (Math 215); INTRODUCTION TO HIGHER ALGEBRA.**—Polynomials; matrices; groups; bilinear, quadratic, and Hermitian Forms; elementary divisors. Prerequisite: Math 111.

5 hours a week; one semester, credit 5 units.

**Mathematics 225 (Math 225); FUNCTIONS OF A COMPLEX VARIABLE.**—Complex number system; Cauchy's theorem; Taylor's and Laurent's expansions; elementary Functions; conformal representation; Riemann surfaces; analytic continuation.

5 hours a week; one semester, credit 5 units.

**Mathematics 231 (Math 231); DIFFERENTIAL GEOMETRY.**—Application of the Calculus to the study of skew curves and the geometry of surfaces. Prerequisite: Math 111 and 105.

3 hours a week; one semester, credit 3 units.

**Mathematics 235 (Math 235); METRIC FUNCTIONS OF A REAL VARIABLE.**—Real number system; theory of classes; discontinuous functions; Fourier and Allied series; Lebesgue and Stieltjes integrals. Prerequisite: Math 131 and 225.

5 hours a week; one semester, credit 5 units.

**Mathematics 241 (Math 241); THEORY OF NUMBERS.**—Elements of the theory of integers and algebraic numbers. Prerequisite: Math 111.

5 hours a week; one semester, credit 5 units.

## DEPARTMENT OF ORIENTAL LANGUAGES

**Professor OTTO J. SCHEERER, (Head), Assistant Professor S. L. AU YEUNG, (Chinese); Assistant Professor SATOSHI GOTO, (Japanese); Instructor CECILLO LOPEZ,** authorized to conduct a private class in Tagalog

With exception of the courses in Philippine linguistics, which are scientific and comparative in nature, the courses in this department are chiefly designed to give to students the practical use of the languages concerned; the exercises are, however, interspersed with occasional lectures on historical or cultural subjects designed to bring the spheres of thought underlying these languages more comprehensively before the mind of the student.

### SECTION OF PHILIPPINE LINGUISTICS

Instruction in Philippine Linguistics in the University has for its chief aim to enable students intelligently to judge of the place occupied by Philippine languages among other forms of human speech, especially among the languages of surrounding parts of Asia and Oceania, and to make it possible for the student to form for himself an intelligent opinion of the future of the vernaculars. It is sought to attain these ends, first, by an exposition of the history, methods and aims of the science of language in general, and, second, by a presentation of the characteristics of the languages making up the Philippine group.

**Philippine Linguistics 101; HISTORY AND METHODOLOGY OF THE COMPARATIVE STUDY OF LANGUAGE.**—Ancient views largely surviving till today. Beginnings of the science of language through the introduction into Europe of the study of Sanskrit. Humboldt and others.

Philosophical views of language. Development of modern views. Study of phonetics and sound-changes.

3 hours a week (Class); first semester, credit 3 units.

Philippine Linguistics 102; *THE PHILIPPINE GROUP OF LANGUAGES*.—History of the exploration of Oceanic languages. The Austronesian (or Malayo-Polynesian) trunk. The Indonesian family of languages. The Philippine group, its extension and chief characteristics. Comparative study of the vocabulary, phonology, and grammar of its principal members. Spelling reforms. Bibliography of Philippine languages. Genesis of national languages in other countries.

3 hours a week (Class); second semester, credit 3 units.

Philippine Linguistics 202; *SEMINAR IN PHILIPPINE LINGUISTICS*.—Original research directed upon special points in Philippine Linguistics under guidance of the instructor. Prerequisites: Phil. Linguistics 101 and 102, and a reading knowledge of Spanish.

3 hours a week; either semester, credit 3 units a semester.

#### SECTION OF CHINESE

Chinese 1; *ELEMENTARY CHINESE*.—An introduction to Chinese language with pronunciation in Mandarin, explanation in English, conversation, easy reading, practice in writing, and making simple sentences.

3 hours a week (Class); throughout the year, credit 6 units.

Chinese 2; *INTERMEDIATE CHINESE*.—Study of more advanced Chinese characters, rapid reading of short stories and current events, conversation and translation.

3 hours a week (Class); throughout the year, credit 6 units.

Chinese 3; *THE AMOY COLLOQUIAL*.—This course, intended primarily for students of commerce, aims at giving them a working knowledge of the Amoy Colloquial as spoken by the majority of Chinese merchants in the Philippines, the Straits Settlements (The Malay States) and Netherlands East India.

3 hours a week (Class); throughout the year, credit 6 units.

Chinese 101; *ADVANCED CHINESE*.—Reading and translation of modern authors; short stories and newspapers. Exercises in speaking and writing continued. Practice of writing Chinese commercial documents—business letters, invoices and different forms of bills.

Prerequisite: Chinese 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

#### SECTION OF JAPANESE

Japanese 1; *A FIRST YEAR COURSE IN JAPANESE*.—The course is aimed at giving to students a foundation in the use of the so-called "colloquial Japanese," and includes exercises in Kana writing.

3 hours a week (Class); throughout the year, credit 6 units.

Japanese 2; *ADVANCED JAPANESE*.—Exercises in speaking and writing continued. The study of the most common Chinese characters on the list of the National Language Investigation Commission. Insight into the so-called "written language."

3 hours a week (Class); throughout the year, credit 6 units.

Japanese 101; *ADVANCED JAPANESE*.—An extended study of Chinese characters. Reading of newspapers, short stories, novels, etc., including advanced conversation, translation and grammar.

Prerequisite: Japanese 2.

3 hours a week (Class); throughout the year, credit 6 units.

## DEPARTMENT OF PHILOSOPHY

Professor HENRY S. TOWNSEND, Head. Other members of the faculty to be arranged.

Philosophy 1 (Phil 1); *LOGIC, INDUCTIVE AND DEDUCTIVE*.—A course introductory to the method of science and not to epistemology. Recitations, lectures, written exercises, etc. Required in second-year library science and in first-year preparatory law.

3 hours a week; either semester, credit 3 units.

Philosophy 2 (Phil 2); *THE PRINCIPLES AND METHODS OF SCIENCE*.—A brief elementary course, supplementary to Philosophy 1. Recitations, lectures, practical exercises, examination of discoveries of science new from month to month, with a view to the understanding of the methods actually followed by the recognized great scientists of the day.

Prerequisite: Philosophy 1.

3 hours a week; second semester, credit 3 units.

Philosophy 3 (Phil 3); *THE HISTORY OF EUROPEAN AND AMERICAN PHILOSOPHY*.—A survey course covering the period from the time of Thales to the present, designed as a preparation for the more detailed study of particular problems and periods of philosophy in later courses. Textbook with lectures and outside readings.

Prerequisite: Psychology 1 or Phil 1.

3 hours a week; first semester, credit 3 units.

Philosophy 104 (Phil 104); *THE PRINCIPLES OF ETHICS*.—A search for the principles of right and wrong in the various relations of life. Lectures, recitations, and studies. This course should follow Phil 1.

3 hours a week; first semester, credit 3 units.

Philosophy 105 (Phil 105); *PROBLEMS OF PHILOSOPHY*.—A course designed to lead students to think out intelligently their own opinions in the light of those of the world's great thinkers, on some of the problems of philosophy. This course should follow Phil 3.

3 hours a week; second semester, credit 3 units.

Philosophy 106 (Phil 106); *THE PHILOSOPHY OF RELIGION*.—A study of the religious sentiment in its various manifestations. The relations of the various religions to the philosophy of the people, whether subconsciously held or reasoned. The religious beliefs of the great philosophers, European, American and Asiatic.

Prerequisite: Phil 3.

3 hours a week; first semester, credit 3 units.

Philosophy 201 (Phil 201); *STUDIES IN CONTEMPORARY PHILOSOPHY*.—A seminar, meeting once a week, for the semi-independent study of contemporary problems or systems of philosophy. The content of the

course will be varied from time to time, as interest and opportunities may dictate. Readings, reports and discussions. Owing to limited library facilities the registration for this course will have to be restricted rather closely. A graduate course, to which exceptional Senior College students may be admitted.

Prerequisite: 9 units of credit in philosophy.

3 hours a week; both semesters, credit 3 units each semester.

**Philosophy 202 (Phil 202); PHILOSOPHY OF CURRENT SOCIAL PROBLEMS.**—A study of some of the Social Problems of the day in the light of the thoughts of the great philosophers on the subject. The content of the course will be varied from time to time as interest and opportunity may dictate. A seminar, meetings once a week for reports on required readings with subsequent discussions. Enrollment restricted in accordance with library facilities.

Prerequisites: Phil 3 and such other credits as the subject chosen for study may indicate.

3 hours a week; both semesters, credit 3 units each semester.

## DEPARTMENT OF PHYSICS

Professor G. B. OBEAR, Head; Assistant Professors, A. L. CORCUERA, C. DEL ROSARIO (on leave), T. P. ABELLO (on leave); Instructors, E. C. TOLENTINO, E. T. MENDOZA, G. ONGJOCO, E. G. GOCHANGCO, A. E. ESGUERRA, and M. G. DE LA CRUZ.

The Department of Physics, occupying an entire building on the University Campus, is well equiped to teach college physics. Besides the ordinary collection of apparatus used for routine instruction, the department possesses a good collection of special apparatus for the use of advanced students and members of the instructing staff, in pursuing special investigations.

The department has, through the Government, an organic connection with the Bureau of Science and with the Weather Observatory, having access to their equipment and facilities. The department acknowledges the willing help and support of these institutions in its work of research. The greater portion of the books and periodicals on Physics are in the Library of the Bureau of Science, although the department, at present, possesses a small private library.

The courses in the department are designed to meet the needs of Junior College, Senior College, and Graduate students. For students desiring the degree of B.S. an arrangement of courses conforming to the requirements of Groups III and IV can be made upon application by the student.

The curriculum can be so arranged as to give thorough training for: (a) graduate work in physics; (b) the better positions in physics in the insular secondary schools; (c) the major instructorships in the department.

Courses 101, 102, 105, 106, 201, 102, 203, 204, are electives and are for those students who are especially interested in Physics.

In general the "200" courses are not given each year, but upon approved application only. However, one exception to this is made in the case of Physics 201, which is offered every year at the request of the Department of Chemistry.

Students planning to take these courses should make a written or verbal application to the Head of the Department, during the month of June, a year in advance. During May of any year the Department will probably be in a position to inform students as to the courses to be given the following year.

Students should note carefully the prerequisites for the various courses, so that their applications may be valid.

Any student who contemplates doing major work in Physics should consult the Head of the Department. The Department is in a condition to offer work, along certain lines of research, leading to the degree of Master of Science.

The requirements for Physics major students in the College of Education are met as follows: second-year students are to take Physics 2M lectures (3 units), Physics 2E laboratory (2 units); third-year students are to take Physics 103, 104. It is suggested that this group of students take Physics 101 as their third year, second semester elective, and Physics 102 as their fourth-year, second semester elective.

(a) Students not required to take or do not intend to take Physics in their subsequent work.

Credit will be granted on the strength of record as shown in U. P. Form 1. Physics laboratory notebook presented must be accompanied by the required certificates as heretofore, but the Department of Physics waives the right to examine the notebook if the officer charged to pass on the application is satisfied with the grade.

(b) Students required to take, or those who intend to take Physics.

Such students will be admitted to Physics 2, 2E, 211, 221, 2M (all courses in general physics) by passing a comprehensive written examination in high-school Physics, covering a year's work including both classroom and laboratory work. The examination is intended to reveal the students' acquaintance with the more important phenomena of Physics, and with the principles involved in their explanation. Students failing in this examination will be required to take Physics 1 (elementary physics).

Students will be required to take this examination when they first enter the University. If not taken then, and the student can not show cause satisfactory to the Department of Physics, he will be required to take Physics 1.

**Physics 1 (Phys 1) ELEMENTARY PHYSICS.**—This course is an introduction to the study of Physics, and is especially designed for those who do not present acceptable entrance Physics for credit. The work consists of lectures, laboratory work, and the solution of simple problems.

7 hours a week (4 Lab, 3 Lect); first semester, credit entrance only.

**Physics 1 (Phys 1); ELEMENTARY PHYSICS.**—Prerequisites: Physics 1, first semester, or its equivalent.

7 hours a week (4 Lab, 3 Lect); second semester, credit entrance only.

#### JUNIOR COLLEGE COURSES

**Physics 2E (Phys 2E); GENERAL PHYSICS.** (NOTE.—The first semester of this course is designated as Physics 211 by the College of Engineering). (Prerequisites: Physics 1, or its equivalent, the Mathematics 4).—A general first-year course in college Physics. It embraces

lectures, quizzes, laboratory work, and the solution of problems illustrating the application of Physics to engineering.

9 hours a week (6 Lab, 3 Lect); first semester, credit 5 units.

Physics 2E (Phys 2E); *GENERAL PHYSICS*.—(Note.—The second semester of this course is designated as Physics 221 by the College of Engineering). (Prerequisites: Physics 1, or its equivalent, Mathematics 4, and Physics 2E, first semester).—This course is a continuation of the one immediately above.

9 hours a week (6 Lab, 3 Lect); second semester, credit 5 units.

Physics 2M (Phys 2M); *GENERAL PHYSICS* (Prerequisites: *Physics 1, or its equivalent, Mathematics 4*).—A course of the same importance as that of Physics 2E. Certain topics which should be of special value to premedical students are emphasized. The work is carried on by means of lectures, quizzes, laboratory work, and problems in physics.

6 hours a week (3 Lab, 3 Lect); first semester, credit 4 units.

Physics 2M (Phys 2M); *GENERAL PHYSICS* (Prerequisites: Physics 1, or its equivalent, Mathematics 4, Physics 2M, first semester).—The course is a continuation of the one immediately above.

6 hours a week (3 Lab, 3 Lect); second semester, credit 4 units.

#### SENIOR COLLEGE COURSES

Physics 101 (Phys 101); *HISTORY OF PHYSICS* (Prerequisite: Physics 2E, or 2M).—A course which aims to give the student a historical foundation in Physics. The progress in Physics is traced from a few centuries before Christ, to modern times. The course primarily undergraduate, may be taken by graduates also. A reasonable amount of outside reading is required, together with the preparation of historical papers.

3 hours a week (Lect); first semester, credit 3 units.

Physics 102 (Phys 102); *MODERN PHYSICS* (Prerequisite: Physics 2, or its equivalent).—A general elementary treatment of the advances made in atomic Physics during the period from about 1896 to date. The course is composed of simple discussions of kathoderays Rontgen rays, Radioactivity, Electron theory, atomic structure, Quantum theory, Spectra, Photoelectric effect, Thermonics, Theory of relativity.

4 hours a week (Lect); second semester, credit 4 units.

Physics 103 (Phys 103); *MECHANICS, MOLECULAR PHYSICS, HEAT* (Prerequisites: Physics 2E, or 2M, and Mathematics 4).—The fundamental principles of the branches of Physics treated in the earlier courses are here investigated in greater detail and thoroughness. A general discussion of the theory of the experiments which are performed in the laboratory, together with instruction on those topics directly allied with the experiments, forms the major part of the class-room work of this course. The laboratory work consists in determinations of certain values which are of importance in the study of the above division of Physics, in revealing to the students the underlying principles, in making him familiar with the manipulation and behaviour of apparatus, and in giving him practice in accurate observation and determination. Besides the above, the student is required to solve a large number of problems in Physics.

9 hours a week (6 Lab, 3 Lect); first semester, credit 5 units.

Physics 104 (Phys 104); *ELECTRICITY, SOUND, LIGHT* (Prerequisites: Physics 2E, or 2M, Physics 103, Mathematics 4).—A continuation of Physics 103, and conducted along the same general lines.

9 hours a week (6 Lab, 3 Lect); second semester, credit 5 units.

Physics 105 (Phys 105); *INTRODUCTION TO THEORETICAL PHYSICS* (Prerequisites: Phys 2E or 2M or its equivalent, and both differential and integral calculus).—In this course, the student is made acquainted with some of the applications of mathematical procedure as applied to the discussion of physical principles. It is so designed as to be of considerable value to students in Chemistry as well as those of Physics.

3 hours a week (Lect), first semester, credit 3 units.

Physics 106 (Phys 106); *INTRODUCTION TO THEORETICAL PHYSICS* (Prerequisites Physics 105).—A continuation of Physics 105.

3 hours a week (Lect), second semester, credit 3 units.

Physics 107 (Phys 107); *INTRODUCTION TO WIRELESS COMMUNICATION* (Prerequisites: Physics 2, and both differential and integral calculus).—A course designed to present to students the fundamentals of wireless telegraphy and wireless telephony.

Not given 1925-26.

3 hours a week (Lect); second semester, credit 3 units.

#### GRADUATE COURSES

Physics 201 (Phys 201); *THERMODYNAMICS, MOLECULAR PHENOMENA* (Prerequisites: Physics 2M, or 2E, 103, 104, 105, 106, Mathematics 21, 22).—The course consists of lectures, supplemented by work in the advance physics laboratory. In the lecture room, such topics as The Kinetic Theory of Gases and Liquids, Thermodynamics, Surface Tension and Capillary Phenomena, Electrolytic Conductivity, are discussed. The work in the laboratory involves accurate determinations of J, Specific Heats, Pressure Coefficients, Expansion Coefficients, Capillary Constants, Viscosity Constants of Liquids and Gases, Molecular Electrical Conductives.

9 hours a week (6 Lab, 3 Lect); throughout the year, credit 5 units each semester.

Physics 202 (Phys 202); *LIGHT* (Prerequisites: Physics 103, 104, 105, 106, Mathematics 21 and 22).—In the lectures of this course both physical and geometrical optics are discussed. The application of optics to photography is given special attention. The laboratory portion of the course is made up of accurate measurements of Interference, Dispersion, Diffraction, Polarization, Testing of Photographic Lenses and Shutters, and some general work in laboratory photography.

9 hours a week (6 Lab, 3 Lect); throughout the year, credit 5 units each semester.

Physics 203 (Phys 203); *ELECTRICITY AND MAGNETISM* (Prerequisites: Physics 103, 104, 105, 106, Mathematics 105).—This course con-

sists of lectures and laboratory work. The theories of Direct and Alternating current are treated mathematically. Various forms of electrical measuring instruments are discussed, practice in the use of which being accomplished in the laboratory.

9 hours a week (6 Lab, 3 Lect); throughout the year, credit 5 units each semester.

Physics 204 (Phys 204); *ELECTRON THEORY AND ATOMIC STRUCTURE* (Prerequisites: Physics 102, 103, 104, 105, 106, Mathematics 21 and 22).—This is a lecture course in which such topics as the following are discussed: A study of the Classical Determination; the Applications of the Electron Theory to Conduction in Gases, Metallic Conduction, Thermionics, PELTIER Effect, Photo-Electric Effect, The BROWNIAN Movement. The course also embraces a discussion of the Significance of Radioactivity, ROENTGEN Rays and Spectroscopy in Atomic Investigations, The Contributions of RUTHERFURD, BOHR, LANGMUIR, SUMMERFIELD and others, to the modern atomic theory. Original papers and current articles will be consulted and reported. The course is carried on in a much more thorough manner than is possible in Physics 102.

3 hours a week (Lect); throughout the year, credit 3 units each semester.

## DEPARTMENT OF POLITICAL SCIENCE

Professor KALAW (Head), Professor MALCOLM, Assistant Professors REYES and AUSTRIA, Professorial Lecturer LAUREL, Instructor: Mr. DATO

Political Science 2 (PolSc 2); *CONSTITUTIONAL HISTORY*.—A rapid survey of the growth of constitutionalism in Great Britain, the United States, Spain, and the Philippines. Prescribed in the first year of the Preparatory Law Course.

3 hours a week (Class); first semester, credit 3 units.

Political Science 3 (PolSc 3); *AMERICAN GOVERNMENT*.—A study of the government and politics of the United States. Prescribed in the second year of the Preparatory Law Course.

3 hours a week (Class); first semester, credit 3 units.

Political Science 4 (PolSc 1 combined with PolSc 4 after the adoption of social Science 1); *INTRODUCTION TO POLITICAL SCIENCE AND PHILIPPINE GOVERNMENT*.—An introductory course dealing with the general elements of political science and the development and fundamentals of Philippine government and politics.

Textbook, lectures, and assigned readings. Prescribed in the second year of the Preparatory Law course.

3 hours a week (Class); first semester, credit 3 units.

Political Science 5 (PolSc 5); *ORIENTAL GOVERNMENTS*.—A study of the governments and political relations of the Orient, particularly of Japan, China, and the East Indies. Prescribed in the second year of the Preparatory Law Course.

3 hours a week (Class); second semester, credit 3 units.

**SENIOR COLLEGE**

Political Science 100 (PolSc 6); *EUROPEAN GOVERNMENT*.—A study of the fundamental organization of the principal European governments.

Prerequisites: Political Science 1 and 2.

3 hours a week (Class); first semester, credit 3 units.

Political Science 101 (PolSc 101); *POLITICAL PARTIES*.—The part they play in modern politics, with special reference to the political parties of the United States, England, and the Philippines.

Prerequisites: Political Science 1, 3, and 4.

3 hours a week (Class); first semester, credit 3 units.

Political Science 102 (PolSc 102); *MUNICIPAL GOVERNMENT*.—An investigation of the various methods by which modern cities and towns are administered. Special reference to conditions in the Philippines.

Prerequisites: Political Science 1, 3, and 4.

3 hours a week (Class); first semester, credit 3 units.

Political Science 103 (PolSc 103); *TEACHER'S COURSE IN GOVERNMENT*.—Methods of teaching government in the intermediate and secondary schools. A rapid review of the text for Civics used in the public schools. Primarily for students of the College of Education.

Prerequisites: Political Science 1 and 3.

3 hours a week (Class); second semester, credit 3 units.

*JUNIOR HOUSE OF REPRESENTATIVES (JHR)*.—Practice in parliamentary law, debating, and legislation.

1 hour a week (Class); throughout the year, credit 2 units.

Political Science 104 (PolSc 104); *DIPLOMACY*.—The science and practice of international intercourse as conducted through diplomatic and consular agents, other public representatives, and international bodies, with a general survey of the development of the leading foreign policies of the United States, and of problems in world politics connected with the Great War. Lectures and assigned readings.

Prerequisite: Second-year standing.

3 hours a week (Class); second semester, credit 3 units.

Political Science 105 (PolSc 105); *CONSTITUTIONAL DEVELOPMENTS IN CHINA*.—An intensive study of the rise of democratic principles in China during the pre-Confucian days, the Confucian era, and the constitutional progress of modern China. The institutions of the patriarchate, village governments, censorship, and the influence of public opinion in the Empire. The abdications of Yao, Shun, and Yu viewed in the light of popular election. The influence of Confucian classics in political affairs. The status of the Emperor in Ancient China. The *coup de etat* of 1898, the Boxer Uprising, constitutional agitation during the Manchu régime, the republic and its aftermath. Lectures and Outside Readings.

3 hours a week (Class); first semester, credit 3 units.

Political Science 200 (PolSc 200); *THEORY AND PRACTICE OF LEGISLATION*.—A study of the organization and the methods of procedure of legislative bodies, with special reference to the methods of the Philippine

Legislature. Mechanics of bill-drafting. Constitutional conventions and the drafting of constitutions.

Prerequisites: Political Science 1, 3, and 4.

2 hours a week (Class); first semester, credit 2 units.

Political Science 201 (PolSc 201); *CHINESE DIPLOMACY*.—China's international status determined. History of China's foreign relations from the earliest days. Philippine-Chinese relations. Extraterritoriality defined. Its application in Chinese treaty ports. Treaties with or relating to China. Inland navigation. Landholding in China. Concessions and international settlements. Spheres of influence, special privileges, paramountcy, and foreign garrisons in Chinese cities. China's foreign wars and their results in chronological order. The Boxer Trouble, the Open Door, the Lansing-Ishii Pact, and other international agreements affecting China's sovereignty. Foreign loans, Chinese customs revenue, and Chinese emigration to foreign countries. International Opium Convention at the Hague. China's role in the World War and the League of Nations.

Class and outside readings.

3 hours a week (Class); second semester, credit 3 units.

Political Science 202 (PolSc 202); *Far-Eastern Relations and Politics*.—A general survey of the international situation in the Far East. A historical research into the earliest relations between the various Oriental countries themselves and between them and the Occidental countries. The opening up of China, Japan, and Korea, and the colonization of India by Great Britain. The origin and present developments of foreign consular jurisdiction in China, international settlements, and spheres of influence and paramount interests of the powers in the Orient. A careful study of the various international agreements and conventions affecting the status of China, Korea, and the Malayan countries. The position of the Philippines in the Far East. The Orient in the European War and the Paris Conference. The future of Oriental nationalities. The Pacific Conference and topics of current interest.

Lectures and outside readings.

3 hours a week (Class); second semester, credit 3 units.

Political Science 203 (PolSc 203); *History of Political Thought*.—A course dealing with the development of political ideas and theories, ancient and modern; with special emphasis on American ideals, and the development of political thought in the Philippines.

3 hours a week (Class); second semester, credit 3 units.

Political Science 204 (PolSc 204); *Problems in Municipal Government*.—An advanced course dealing with activities and problems of municipal and city governments in Europe and in America, and their application in the Philippines.

Prerequisite: Political Science 8.

3 hours a week (Class); second semester, credit 3 units.

Political Science 205 (PolSc 205); *International Law*.—The development of the nature, sources, and present status of the law of nations. The doctrine of intervention. Recognition of new states. The laws of war and peace. The status of neutrality.

Prerequisite: Sophomore class standing.

3 hours a week (Class); second semester, credit 3 units.

Political Science 206 (PolSc 206); *CURRENT POLITICAL PROBLEMS*.—A course dealing with the current political problems especially of the Philippines and the Far East.

2 hours a week (Class); both semester, credit 2 units each semester.

Political Science 207 (PolSc 207); *COLONIAL GOVERNMENT*.—A study of the self-governing and non-self-governing colonies of the world, and the past and present colonial policies of the great powers.

3 hours a week (Class); second semester, credit 3 units.

Political Science 208 (PolSc 208); *HISTORY OF DIPLOMACY*.—A course dealing with the development of international intercourse.

2 hours a week (Class); first semester, credit 2 units.

Political Science 209 (PolSc 209); *AMERICAN-PHILIPPINE RELATIONS*.—A course dealing with the relations between the United States and the Philippines, including the diplomacy of the Revolutionary War; the Treaty of Paris; the extension of American sovereignty in the Philippines, the Philippine issue in American politics; the passage of the Organic Act of 1902; the campaign for independence in the United States; the American work in the Philippines, the influence of American institutions in the Islands; the work of the Resident Commissioner in the United States, the Jones Law and the Clarke Amendments and the actual relations, political and constitutional, between the two countries. A review of the entire "Philippine problem."

2 hours a week (Class); second semester, credit 2 units.

Political Science 210 (PolSc 210); *SEMINAR IN POLITICAL SCIENCE*.—Report and discussion by faculty or students on current questions in government administration, international and constitutional law. Also the study and examination of scientific literature.

2 hours a week (Class); both semesters, credit 2 units each semester.

(The following courses in the College of Law are also open to students of the Senior College on obtaining special permission: Administrative Law, 2 hours, second semester, 2 units; Public Corporations, 2 hours, first semester, 2 units; Constitutional Law, 3 hours, second semester, 3 units; Comparative Law, 2 hours each semester, 2 units each semester; jurisprudence, 2 hours, first semester, 2 units; legal history, 2 hours, second semester, 2 units; legal philosophy, 2 hours, second semester, 2 units.)

## INTRODUCTION TO SOCIAL SCIENCE

Dean MAXIMO M. KALAW, Chairman; Dean BENITEZ, Professors TOWNSEND, BEYER, ALZONA, and ALONZO

This course is given by the College of Liberal Arts with the coöperation of the College of Education. The coöperating departments are Political Science, Philosophy and Psychology, Anthropology and Sociology, History, Economics, Education, and Library Science.

*INTRODUCTION TO SOCIAL SCIENCE* (Social Science 1).—An introductory course required of all students of the Colleges of Education and Liberal Arts, conducted jointly by the Departments of Political Science, History, Anthropology, Economics, Education, Library Science, and Phi-

losophy. Work in the first semester takes up man's relation with nature, his traits, peculiarities, and ideals, some of the fundamental educational problems especially of the Philippines, the historical background of the present civilization, and a brief history of the great nations. The second semester introduces the students to political science, and discusses the fundamental problems of democracy and popular control of government, problems of imperialism and backward peoples with special emphasis on the relation between the United States and the Philippines. Then follows a brief discussion of fundamental economic principles and the chief economic problems of the Philippines.

3 hours a week (Class); throughout the year, credit 6 units.

### DEPARTMENT OF SPANISH

Professor DE VEYRA (Head); Assistant Professors: MARAVILLAS, BERNABE; Instructors: TEOTICO, DIZON, and VELARDE; Lecturer: Dr. BASA.

Spanish 1 (Span 1); *ELEMENTARY SPANISH*.—A study of the elements of Spanish Language, with reading and exercises in conversation and composition.

Textbook: Moreno-Lacalle's *Elementos de Español*.

3 hours a week (Class); throughout the year, credit 6 units.

Spanish 2 (Span 2); *INTERMEDIATE SPANISH*.—Spanish grammar; reading, conversation and composition.

Prerequisite: Spanish 1, or its equivalent.

Textbooks: F. T. D., "Gramatica Española" (tercer grado), según los principios de la Real Academia; Morley's *Spanish Humor in Story and Essay*.

3 hours a week (Class); throughout the year, credit 6 units.

Spanish 101 (Span 101); *ADVANCED SPANISH*.—Advanced Spanish composition and introduction to Spanish Literature; history of Spanish Literature before the Golden Age.

Prerequisite: Spanish 2.

Textbook: Rizal's *Noli Me Tángere* and *El Filibusterismo*; R. Blanco's *Elementos de Literatura española*.

Reference books: Salcedo-Ruiz's *La Literatura Española*, and Cejador's *Historia de la Lengua y Literatura Castellana*.

3 hours a week (Class); throughout the year, credit 3 units.

Spanish 102 (Span 102); *THE GOLDEN AGE OF SPANISH LITERATURE*.—The work comprises mainly the reading of the classics of this period, with particular emphasis on Cervantes, Lope de Vega, Tirso de Molina and Calderon de La Barca, and the study of "cultism" and "conceptism." (Senior College Course.)

Prerequisite: Spanish 2.

Textbooks: Fitzmaurice-Kelly's *Historia de la Literatura Española*; and Agusti's *Modelos de Literatura Castellana*.

Reference books: Salcedo-Ruiz's *La Literatura Española*, Cejador's *Historia de la Lengua y Literatura Castellana*.

Spanish 103 (Span 103); *SPANISH-PHILIPPINE LITERATURE*.—Reading, research and report.

Prerequisite: Spanish 2.

Textbooks: Veyra-Basa's *Antología de Prosistas Filipinos*; Camara's *Parnaso Filipino*; and Guerrero-Teotico's *Poetas Líricos Filipinos*.

3 hours a week (class); through out the year, credit 6 units.

Spanish 201 (Span 201): *CONTEMPORARY SPANISH LITERATURE AND SPANISH-AMERICAN LITERATURE*.—Reading and research, with some reference to its influence on Spanish Literature in the Philippines. (Senior College Course.)

Prerequisite: Spanish 2.

Textbooks: Blanco-Garcia's *La Literatura Española en el Siglo XIX*; Gomes-Bravo's "Tesoro Poético del Siglo XIX"; and Gonzalez-Blanco's *Los Contemporáneos*.

3 hours a week (class); throughout the year, credit 6 units.

## DEPARTMENT OF ZOOLOGY

Professor SIVICKIS (Head), Assistant Professors RUSTIA, and CLEMENTE, Instructors: Dr. ALEJANDRO, and Mr. SANTOS, Assistants: Mr. DOMANTAY, Dr. FELICIANO, Mrs. FILOTEO.

Zoölogy 1 (Zoöl 1); *INTRODUCTION TO ZOOLOGY*.—Introduction to general principles of the subject. Prerequisite for all courses in the Department except Zoölogy 2, 3, and 16.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 2 (Zoöl 2); *ELEMENTARY ZOOLOGY*.—A rapid survey of general principles of the subject with emphasis upon the economic side of zoölogy. Intended primarily for Pharmacy students, others admitted.

5 hours a week (3 Lab, 2 Class); one semester, credit 3 units.

Zoölogy 3 (Zoöl 3); *BIOLOGICAL PROBLEMS IN ENGINEERING*.—A brief course treating the biological problems involved in construction, water supply, sewerage, and sanitation.

1 hour a week (Class); one semester, credit 1 unit.

Zoölogy 16 (Zoöl 16); *GENETICS, EUGENICS, AND EVOLUTION*.—A culture course dealing with the history and principles of Genetics and Evolution. Open to all students without previous training in zoölogy.

Lectures, readings, and class recitations.

3 hours a week (3 Class); one semester, credit 3 units.

Zoölogy 21 (Zoöl 21); *COMPARATIVE ANATOMY AND PHYLOGENY OF VERTEBRATES*.—Organs and systems and their phylogeny will be traced through various groups of vertebrates from morphological and physiological point of view. Required course for the students intending to study medicine. Others will be admitted.

Prerequisite: Zoölogy 1.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 24 (Zoöl 24); *SYSTEMATIC ZOOLOGY*.—A general systematic survey of the animal kingdom and study of morphology, physiology, and distribution of animals. Training in classification and general and special

methods of collecting and preserving animals. Primarily for Education students. Others admitted.

Prerequisite: Zoölogy 1 or its equivalent.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 101 (Zoöl 101); *INVERTEBRATE ZOOLOGY*.—A thorough study of the representatives of invertebrates including morphology, physiology, and life history, together with some discussions of the habits, distribution, and methods of classification.

Lectures, demonstrations, and laboratory work.

Prerequisite: Zoölogy 1.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

Zoölogy 102 (Zoöl 102); *INVERTEBRATE ZOOLOGY*.—A sequence of course 101 but may be taken separately. This course takes up in a similar manner the representatives of invertebrates not considered in 101.

Prerequisite: Zoölogy 1.

9 hours a week (6 Lab, 3 Class); second semester, credit 5 units.

Zoölogy 105 (Zoöl 105); *GENERAL EMBRYOLOGY*.—Morphology and Physiology of development of invertebrates. Formation of germ cells, maturation, fertilization, germ layers, and origin of embryo. Process of development in common invertebrates. Embryological theories and technique.

Prerequisite: Either Zoölogy 21 or 24, or their equivalents.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 106 (Zoöl 106); *GENERAL EMBRYOLOGY*.—Continuation of Zoölogy 105 but may be taken separately. Study of the process and theories of development of vertebrates. Common vertebrate animals will be used for laboratory work.

Prerequisite: Either Zoölogy 21 or 24, or their equivalents.

9 hours a week (5 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 107 (Zoöl 107); *FIELD WORK*.—Collection of animals in the field and study of collected material in the laboratory. Special attention is paid to easily accessible animals for class work and individual study. Methods of collecting and preserving the animals for future use.

Prerequisite: Zoölogy 24 or Zoölogy 21, or their equivalents.

Hours and credit to be arranged.

Zoölogy 108 (Zoöl 108); *EXPERIMENTAL ZOOLOGY*.—Conferences and Experimental work on general embryology, morphogenesis, and physiology of animals. The nature of work will depend largely upon material available.

Prerequisite: A thorough knowledge of Zoölogy and admission to the course by the instructor in charge.

Hours and credit to be arranged.

Zoölogy 112 (Zoöl 112); *MICROSCOPIC TECHNIQUE*.—A course giving instruction and practice in the preparation of materials for microscopic examination. Practice in fixing, staining, sectioning, and mounting tissues and organisms.

Prerequisite: Zoölogy 21 or 24, or their equivalents.

One semester, hours and credits to be arranged.

Zoölogy 115 (Zoöl 115); *INTRODUCTION TO GENERAL PHYSIOLOGY*.—A theoretical and experimental consideration of fundamental problems of physiology.

Prerequisite: A satisfactory training in biology and chemistry.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 116 (Zoöl 116); *GENETICS AND EUGENICS*.—Breeding experiments, lectures, recitations, and reports. Drosophila Mice, Protozoa and Crustaceans used as experimental animals.

Prerequisite: Either Zoölogy 24 or 105, or their equivalents. Optional, Zoölogy 16 and Botany 101.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 200 (Zoöl 200); *CURRENT ZOÖLOGICAL LITERATURE*.—Reports and discussions on selected topics from the current Zoölogical or allied literature. Primarily for graduate students, but open to all others interested in Biological sciences.

1 hour a week (Class); each semester, credit 1 unit.

Zoölogy 201 (Zoöl 201); *THEORETICAL ZOÖLOGY*.—A critical review of classic and contemporary literature on more important Zoölogical problems: Organism as a whole, reproduction, senescence and rejuvenescence, heredity, sex determination, hormone action, etc. Lectures, recitations, and reports on original literature. Primarily for graduates in Zoölogy. In special cases, others may be admitted.

Throughout the year, 3 hours a week (3 Class); credit 3 units a semester.

Zoölogy 215 (Zoöl 215); *RESEARCH*.—Students who have had sufficient preparation will be assigned to research work. Each semester. Hours and credit to be arranged.

## **The Junior College of the University of the Philippines**

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### **ADMINISTRATIVE OFFICERS**

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College:* Dr. JOSE J. MIRASOL

*Registrar:* Mr. ANTONIO I. DE LEON

*Collecting, Disbursing, and Property Officer:* Mr. LUCIO P. CORTES

### **CHAIRMEN OF STANDING COMMITTEES**

1. *Admission, Scholarship, and Promotion:* Miss ADELA DEL ROSARIO
2. *Catalogue and Curriculum:* Mr. ISMAEL AMADO
3. *Schedule:* Mr. SOFRONIO BALCE
4. *Library:* Mr. JULIO E. PONGAN
5. *Exemption Board:* Dean J. J. MIRASOL
6. *Student Activities:* Dean J. J. MIRASOL
7. *Social Affairs:* Prof. CANUTO BORROMEO
8. *Buildings and Grounds:* Dr. CONSTANCIO RUSTIA
9. *Athletics:* Mr. MANUEL E. PABLO
10. *Military Science:* Mr. LINO BAÑARES

### **BUSINESS DIRECTORY**

**OFFICE OF THE DEAN:** The office of the Dean is located in room No. 4, College Building, Fort San Pedro.

**CORRESPONDENCE:** Address all correspondence to the Dean, Junior College of the University of the Philippines, Cebu, Cebu, P. I.

# THE JUNIOR COLLEGE OF THE UNIVERSITY OF THE PHILIPPINES

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## SCOPE AND AIMS

The Junior College of the University of the Philippines was established to meet the crying need of an institution of higher learning for the youth of the Southern Islands. Due to the geographical location and formation of these Islands only a limited few can afford to attend the colleges situated in Manila. The Junior College thus affords the opportunity of a university education to those of modest means. The work of the College at present is confined to the following:

## COURSES OF INSTRUCTION

Preparatory Law—two years.  
Preparatory Medicine—two years.  
Commerce—first two years.  
Education—first three years.  
General—first three years.  
Special Courses in Commerce.

## ADMISSION OF STUDENTS

Requirements for admission and general regulations are the same as those of the College of Liberal Arts and Education. (See pages 93–100.)

## FEES

A tuition fee of ₱25 a semester is charged for all courses leading to the title of Associate in Arts.

A fee of ₱5 a semester is charged in all laboratory courses giving 3 units of credit or less; for those giving five units, ₱10. For laboratory courses in Chemistry a fee of ₱15 is required.

There is a fee of ₱5 for delayed registration, and for any change in registration a fee of ₱5 is also charged.

On the payment of a fee of ₱10 a student may take a special examination at any time for the purpose of removing a condition.

Every student is required to pay a library fee of ₱2.50 a semester, ₱1 a semester for athletics, and ₱1 a semester for the *Philippine Collegian*.

A fee of ₱10 is charge for all diplomas and certificates.

## DEPOSITS

Each regular student of the College will be required to deposit ₱15 additional with the collecting and disbursing officer on matriculation. This deposit is for the purpose of covering any losses of apparatus, supplies, books, etc., or any damage to University property which may properly become a charge against the student.

**EXPENSES OF STUDENTS**

Student's expenses in Cebu are much lower than in Manila.

Board and lodging vary from ₱10 to ₱30 but much depends on personal tastes.

Expenses for books vary from ₱20 to ₱40.

**TITLES**

The title of Associate in Arts will be granted upon completion of the two-year preparatory courses for law or medicine, or of the first two years' work in the vocational or cultural courses offered in this College.

**BOTANY**

Botany 1 (Bot 1); *ELEMENTARY BOTANY*.—Laboratory work, lectures, and recitations covering the essentials of elementary botany including the morphology and physiology of seed plants, a general survey of the great groups of plants, and subjects of general interest such as heredity. This course is required of students who are taking the premedical course.

Textbook: Brown, Elementary Tropical Botany. Laboratory text: Brown, Laboratory Botany.

9 hours a week (6 Lab, 3 Class); second semester, credit 5 units.

**CHEMISTRY**

Mr. ANTONIO I. DE LEON, Mr. SOFRONIO BALCE and Assistant R. DAKOYKOY

Chemistry 23 (Chem 23); *GENERAL AND INORGANIC CHEMISTRY* (Pre-Medical and General Science).—A course giving the essentials of elementary general inorganic college chemistry. Both the fundamental principles of the subject and the practical applications to the industries and every day life are emphasized.

Lectures, recitations, and laboratory work.

9 hours a week (3 Class, 6 Lab.); throughout the year, credit 10 units.

Chemistry 26 (Chem 26); *ORGANIC CHEMISTRY* (Chemistry of Carbon compounds).—An introductory course giving the theoretical principles and practical applications of synthetic organic chemistry. The general relations between different groups of compounds, the application of general reactions, and the laboratory preparation, and general behavior of compounds characteristic of each group are emphasized.

Prerequisite: Chemistry 23.

Lectures, recitations, and laboratory work.

9 hours a week (3 Class, 6 Lab); through the year, credit 10 units.

Chemistry 27 (Chem 27); *QUALITATIVE INORGANIC ANALYSIS*.—A systematic qualitative analysis of basic and acidic constituents of compounds, with drill in the analysis of compounds, mixtures, mineral, and alloys (Unknowns) the composition of which is unknown to the students. Each unknown is considered a practical examination. A course designed primarily for premedical students.

Prerequisite: Chemistry 23.

Lectures, recitations, and laboratory work. Laboratory fee, ₱10 per semester.

9 hours a week (3 Class, 6 Lab); first semester, credit 5 units.

**Chemistry 28 (Chem 28); QUANTITATIVE INORGANIC ANALYSIS** (Volumetric and Gravimetric).—The theory and practice of volumetric and gravimetric analysis, chiefly the analysis of simple salts, minerals, and alloys. Special emphasis is laid upon the chemical calculations of standard solutions, oxidation and reactions, iodimetry, etc.

Prerequisites: Chemistry 23 and 27.

Lectures, recitations, and laboratory work. Laboratory fee, ₱10 a semester.

This course is not offered this year.

9 hours a week (3 Class, 6 Lab); second semester, credit 5 units.

## ECONOMICS AND ACCOUNTING

Prof. J. J. MIRASOL, Messrs, RAY. PAÑGILINAN<sup>1</sup> and JOSE CENIZA

**Economics 1 (Econ 1); PRINCIPLES OF ECONOMICS.**—General introduction to the study of political economy. Application of principles to local conditions. First year.

3 units a week; first semester, credit 3 units.

**Economics 2 (Econ 2); ECONOMIC DEVELOPMENT OF THE PHILIPPINES.**—The course gives a general survey of Philippine economic growth and aims to show how and to what extent economic forces have determined the history of the country. Second year.

3 hours a week; second semester, credit 3 units.

**Economics 3 (Econ 3); ECONOMIC DEVELOPMENT OF THE UNITED STATES.**—The economic transformation of a continent. Second year.

3 hours a week; second semester, credit 3 units.

**Economics 4 (Econ 4); GENERAL ECONOMIC DEVELOPMENT.**—This course aims to explain the nature and effects of the most important economic changes and achievements in the principal industrial countries of the world, and deals with certain outstanding features of the present industrial society. Second year.

3 hours a week; first semester, credit 3 units.

## ACCOUNTING

**Accounting 1 (Econ 5); INTRODUCTION TO ACCOUNTING.**—Development of the simple principles of accounting, significance of debit and credit entries; origin of and necessity for various accounts, relation of statistics to accounting. Elementary lessons in single and double entry systems and the drawing of simple trial balances, profit and loss statements, and balance sheets. A prerequisite to all courses in accounting. First year.

3 hours a week; second semester, credit 3 units.

**Accounting 2 (Econ 6); ELEMENTARY ACCOUNTING.**—Practice in the working out of business sets by single entry system with special emphasis on mathematical problems involved. Carrying same or similar set

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<sup>1</sup> On leave.

through double entry system. Introduction and use of subsidiary books. Special emphasis will be laid on problems arising out of the periodic opening and closing of books of accounts. Prerequisite to further accounting courses. Second year.

3 hours a week; first semester, credit 3 units.

**Accounting 3 (Econ 7); ELEMENTS OF CORPORATION ACCOUNTING.**—Discussion of theory and solution of the simpler problems of a corporation. Some of the topics taken up are: Records and accounts peculiar to a corporation; opening entries; entries to record change from a partnership to a corporation; voucher system; theories of the balance sheet and the profit and loss statement; their make-up, form and arrangement, etc. Prerequisites: Accounting 1 and 2. Second year, Required of all Commerce students.

Second semester, credit 3 units.

**Accounting 4B (Econ 18; Acctg. 4); INTERMEDIATE ACCOUNTING.**—A more thorough study of the theory of accounts especially as it applies to problems relating to corporations. Some of the topics covered are: Valuation of balance sheet items; profits; dividends; reserves and surplus; sinking and other funds; problems connected with the manufacturing account and the income statement. Required of students majoring in Accounting; elective for others. Prerequisite: Accounting 3. Third year. Accounting Majors.

First semester, credit 3 units.

**Accounting 4B; INTERMEDIATE ACCOUNTING (Continued).**—Continuation of the discussion of theory and its application to more advanced problems. Third year. Accounting Majors. Prerequisite: Accounting 4A.

Second semester, credit 3 units.

**Accounting 105A (Econ 19 and Acctg 5); ADVANCED ACCOUNTING PROBLEMS.**—Discussion and solution of more advanced problems, both in partnership and in corporation accounting, stressing the principles involved. Some of these are: Liquidations, dissolutions, insurance adjustments, etc. Prerequisite: Accounting 4A and 4B. Fourth year and Graduate. Accounting Majors.

First semester, credit 3 units.

## EDUCATION AND PSYCHOLOGY

Miss ADELA DEL ROSARIO

**Education 1 (Educ 1); HISTORY OF EDUCATION.**—The growth and development of the educational doctrine into its modern form. Required, first semester, second year. Lectures, reading, and class discussion.

Text: *A Brief History of Education* by Monroe.

3 hours a week; first semester, credit 3 units.

**Education 2 (Educ 2); PRINCIPLES OF TEACHING.**—A study of the fundamental ideas and their application to the more common subjects of the course of study. Required, Second year. Lectures, readings, class discussion and reports. Text: *Principles of Teaching* by Thorndike. Prerequisite: Psychology 1.

3 hours a week; second semester, credit 3 units.

**Education 5 (Educ 5); PRACTICE TEACHING.**—Under the supervision of the Department of Education and Psychology. Open only to students who have completed the work of the first two years of the course in Education or accepted equivalents, and who are at the same time pursuing other work in this College. Required in the Fourth year.

Throughout the year, credit 6 units.

**Education 6 (Educ 6); EDUCATIONAL PSYCHOLOGY.**—This course begins with a systematization on the genetic principles and an extension of the data of Psychology 1. This work is accompanied and followed by the application of this enlarged body of psychological ideas to the problems of education. Lectures, readings, class discussion, experiments and extensive written exercises. Required in the third year.

Prerequisite: Psychology 1.

3 hours a week; first semester, credit 3 units.

**Education 7 (Educ 7); COMPARATIVE EDUCATION.**—A study of the educational system of England, France, Germany, and Japan. Elective.

3 hours a week; throughout the year, credit 6 units.

**Education 8 (Educ 8); EDUCATIONAL ADMINISTRATION.**—With special reference to the routine work of the Public School System of the Philippine Islands. Lectures, class discussions, reading, and reports.

3 hours a week; second semester, credit 3 units.

**Education 10 (Educ 10); HISTORY OF EDUCATION IN THE PHILIPPINES.**—The evolution of educational practices and institutions in the Philippines.

3 hours a week; second semester, credit 3 units.

**Education 11 (Educ 11); PRINCIPLES OF INDUSTRIAL EDUCATION.**—Lectures, readings, and reports.

3 hours a week; either semester, credit 3 units.

**Psychology 1 (Psyc 1); ELEMENTARY PSYCHOLOGY.**—Lectures, experiments, recitations, and written exercises calculated to impress upon the beginner the main outlines of the science of Psychology. Required of first year Preparatory Law students and second-year students in Education.

3 hours a week; first semester, credit 3 units.

**Psychology 6 (Psyc 6); THE PSYCHOLOGY OF CHILDHOOD.**—The study of the development of the mind of the child during the preadolescent period. Lectures, recitations, references, observation, original papers, and discussions.

Prerequisite: Psychology 1.

Text: Fundamentals of Child Study by Kirkpatrick.

3 hours a week; second semester, credit 3 units.

**Psychology 8 (Psyc 3); GENETIC PSYCHOLOGY.**—The evolution of mind in the race as indicated by the behavior of organisms, from the simplest to the highest and most complex; as it develops in the individual from infancy to adulthood. Readings, lectures, reports, observation, original papers. Prerequisite, Psychology 1. Formerly constituting the first half of Education 6. Required of all students in the second year of the College of Education.

3 hours a week; second semester, credit 3 units.

## ENGLISH

Assistant Professor WINIFRED O'CONNOR-PABLO

**English 1 (Engl 1); COMPOSITION.**—A course intended to perfect students in the mechanics of writing. The work consists in the study of principles and correct forms, in the writing and revising of themes, and in collateral reading.

Prescribed for all regular first-year students and prerequisite to all other courses in English.

3 hours a week (Class); throughout the year, credit 6 units.

**English 3 (Engl 3); SURVEY OF ENGLISH LITERATURE.**—A brief study of the several periods of English literature. Reading in each period. Lectures, discussions, reports, and quizzes.

3 hours a week (Class); throughout the year, credit 6 units.

**English 8 (Engl 8); ESSAY WRITING.**—A course in the rhetoric of description and exposition, devoted to study of principles and to the writing of essays. Outside reading required. This course should be followed by Course 9.

3 hours a week (Class); first semester, credit 3 units.

**English 9 (Engl 9); ARGUMENTATION.**—A course in the rhetoric of argumentation, devoted to the study of principles, the making of briefs and the writing of arguments. Outside reading required. This course should be preceded by course B.

3 hours a week; (Class); second semester, credit 3 units.

## FRENCH

Dr. LUDWIG FUHRMANN

**French 1 (Fren 1); ELEMENTARY FRENCH.**—Elementary grammar and composition; translation and reading of easy French prose.

3 hours a week; throughout the year, credit 6 units.

**French 2 (Fren 2); INTERMEDIATE FRENCH.**—Advanced grammar and composition, translation, reading, and conversation.

3 hours a week (Class); throughout the year, credit 6 units.

## GERMAN

Dr. LUDWIG FUHRMANN

**German 1 (Germ 1); A FIRST-YEAR COLLEGE COURSE IN GERMAN.**—Pronunciation, grammar, easy reading, with practice in speaking and writing German.

3 hours a week (Class); throughout the year, credit 6 units.

**German 2 (Germ 2); A PREPARATORY COURSE FOR THE READING OF LITERARY AND SCIENTIFIC AUTHORS.**—Class and outside reading of selected texts. Grammar and written exercises continued.

Prerequisite: German 1.

3 hours a week (Class); throughout the year, credit 6 units.

## GEOGRAPHY AND PHYSIOGRAPHY

Dr. J. J. MIRASOL

**Geography 101 (Geog 101); COMMERCIAL AND INDUSTRIAL GEOGRAPHY.**—A brief study of the physical and economic principles underlying the centralization of industry and the geography of commerce. It includes a brief history of commerce, a description of the production and marketing of the principal agricultural products, and a study of the conditions which determine the geographical distribution of the centers of production and consumption of the leading products of the mines and of the forests; a study of the influences of the sources of raw material, means of transportation, population, etc., upon the location of the various kinds of manufacturing industries. The commercial policies of the United States and other important nations of the world are considered. Lectures, readings, and discussions.

Textbooks: Smith, J. Russel, *Commercial and Industrial Geography*; and Valdez, M. R., *Outlines of a Course in Commercial and Industrial Geography*.

3 hours a week; first semester, credit 3 units.

**Physiography 1 (Physg 1).** The surface features of the earth, treated with special reference to their origin and significance; agencies affecting changes in geographic features; physiographic changes in progress as applied to the Philippines. The course includes a brief consideration of the elements of Meteorology and Oceanography. Occasional field trips on Saturdays. Lectures, recitations, references, and reports. Open to all students, particularly to those who are taking the Commerce and Teacher's Course.

Textbook: Tarr and Martin, *College Physiography*.

3 hours a week (Class); throughout the year, credit 6 units.

**Geography 105 (Geog 5); THE NATURAL RESOURCES OF THE PHILIPPINES.**—A study of the lands, waters, forests, and mines of the Philippines as factors of natural development. Particular attention is given to the methods of exploitation, their administration and conservation. Lectures, recitations, references, and reports.

3 hours a week (Class); second semester, credit 3 units.

## HISTORY

Mr. JULIO E. PONGAN

**History 2 (Hist 2); MODERN AND CONTEMPORARY EUROPE, 1815-1919.**—This course will treat of the Congress of Vienna, the industrial revolution, the development of Italian and German unities, the intellectual achievements of the nineteenth century, modern social problems, imperialism in Africa and in the Orient, and the World War.

Prescribed for the first year preparatory Law, first year Education, the Commerce course; and second year Preparatory Medicine.

Text: Hayes' *A Political and Social History of Modern Europe*, Vol. II (MacMillan, 1925).

3 hours a week (Class); first semester, credit 3 units.

History 5 (Hist 5); *PHILIPPINE HISTORY*.—From the British occupation to the American occupation. Representation in the Spanish Cortes, commercial growth, the reform movement, propaganda, the beginnings of the Revolution.

Prescribed for the first-year Commerce course and the course in Education; and the second year of Preparatory Law and Preparatory Medicine.

No text is used, but extensive reading in Blair and Robertson's *The Philippine Islands* is required.

3 hours a week (Class); second semester, credit 3 units.

History 107 (Hist 107); *ANCIENT CIVILIZATION*.—A brief survey of the contributions of the ancient world to European civilization, the development of the political, social, and economic life of the Greek people, and the growth of the Roman system of governments. This is prescribed for students majoring in History.

Text: Bury's *Students' History of Greece* (Kinball Edit); and Pelham's *Outline of Roman History* (fourth edition, revised).

3 hours a week; (Class); first semester, credit 3 units.

History 108 (Hist 108); *MEDIEVAL CIVILIZATION*.—A brief survey of the contribution of the Middle Ages to European Civilization, the Feudal system, the Christian Church, the Holy Roman Empire, the rise of national states, the Renaissance, and the Reformation. (Senior College Course.)

3 hours a week; second semester, credit 3 units.

History 121 (Hist 121); *METHOD OF TEACHING HISTORY*.—A brief discussion of the methods of teaching history prevalent in various countries, especially in France, Germany, England, United States, Japan, and the Philippines, including a study of the various class-room devices employed.

This is primarily designed for those who are preparing to teach History.

Text: Johnson's *Teaching of History* and Tryon's *The Teaching of History in Junior and Senior High Schools*.

3 hours a week; throughout the year, credit 3 units.

History 25 (Hist 25); *UNITED STATES HISTORY, 1492-1829*.—A brief survey of the history of the colonies, the Revolution, the Constitution, and the growth of nationality. This is prescribed for those majoring in History.

Text: Basset, J. S., *A Short History of the United States*.

3 hours a week; first semester, credit 3 units.

History 26 (Hist 26); *UNITED STATES HISTORY, 1829-1919*.—A study of the slavery controversy, the civil war, the reconstruction, and national growth and expansion.

Text: Same as History 25.

3 hours a week; second semester, credit 3 units.

## MATHEMATICS AND PHYSICS

Assistant Professor C. BORROMEO, Mr. S. BALCE and Mr. MANUEL PABLO

Mathematics A (Math A).—Review of Elementary Algebra and Geometry.

3 hours a week; one semester, no credit.

**Mathematics 1 (Math 1); COLLEGE ALGEBRA.**—Quadratics with Graphs; Progressions; Inequalities; Complex Numbers; Permutations and Combinations; Binomial Theorem; Probabilities; Determinants; Theory of Equations.

3 hours a week; first semester, credit 3 units.

**Mathematics 2 (Math 2); THEORY OF INVESTMENT.**—Logarithms; Simple and Compound Interest; Annuities; Bonds. A required course for Commerce students.

3 hours a week; second semester, credit 3 units.

**Mathematics 4 (Math 4); TRIGONOMETRY.**—Logarithms; Trigonometric Functions with Graphs; General Formulae; Solution of Triangles with Applications, Elements of Spherical Trigonometry with applications to Astronomy.

3 hours a week; second semester, credit 3 units.

**Mathematics 8 (Math 8).**—Notion of a Function and Graphical representation; Variation and Linear Graphs; Quadratics; Polynomial Graphs; Indices and Logarithms; Trigonometric Functions; Solution of Right Triangles with Applications. Permutations and Combinations; Probabilities. Intended primarily for premedical students.

3 hours a week; one semester, credit 3 units.

**Physics 2M (Phys 2M); GENERAL PHYSICS** (Prerequisites: Physics 1, or its equivalent, Mathematics 4).—Certain topics which should be of special value to premedical students are emphasized. The work is carried on by means of lectures, quizzes, laboratory work, and problems in physics.

6 hours a week (3 Lab, 3 Lect); both semesters, credit 4 units each semester.

## POLITICAL SCIENCE

Mr. ISMAEL A. AMADO

**Political Science 2 (PolSc 2); CONSTITUTIONAL HISTORY.**—A rapid survey of the growth of constitutionalism in Great Britain, the United States, Spain, and the Philippines. Prescribed in the first year of the Preparatory Law Course.

3 hours a week (Class); first semester, credit 3 units.

**Political Science 3 (PolSci 3); AMERICAN GOVERNMENT.**—A study of the government and politics of the United States. Prescribed in the second year of the Preparatory Law Course.

3 hours a week (Class); first semester, credit 3 units.

**Political Science 4 (PolSc 1 combined with PolSc 4 after the adoption of Social Science 1); INTRODUCTION TO POLITICAL SCIENCE AND PHILIPPINE GOVERNMENT.**—An introductory course dealing with the general elements of political science and the development and fundamentals of Philippine government and politics.

Textbook, lectures, and assigned readings. Prescribed in the second year of the Preparatory Law Course.

3 hours a week (Class); first semester, credit 3 units.

**Political Science 5 (PolSc 5); ORIENTAL GOVERNMENTS.**—A study of the government and political relations of the Orient, particularly of

## SEMESTRAL COURSES: PHIL., SOCIOLOGY, SPANISH 175

Japan, China, and the East Indies. Prescribed in the second year of the Preparatory Law Course.

3 hours a week (Class); second semester, credit 3 units.

Political Science 100 (PolSc 6); *EUROPEAN GOVERNMENTS*.—A study of the fundamental organization of the principal European governments.

Prerequisites: Political Science 1 and 2.

3 hours a week (Class); first semester, credit 3 units.

### PHILOSOPHY

Mr. ISMAEL A. AMADO

Philosophy 1 (Phil 1); *LOGIC: DEDUCTIVE AND INDUCTIVE*.—A course leading to scientific methods, not to Epistemology. Special stress on Fallacies and Syllogism. Recitations, written exercises, etc. Required of first year Preparatory law.

3 hours a week (Class); second semester, credit 3 units.

### SOCIOLOGY

Mr. JOSE LEYSON

Sociology 1 (Soc 1); *PRINCIPLES OF SOCIOLOGY*.—This course is designed as an introduction to the social sciences. Discussion of such topics as sources and materials for the study of Sociology; fields and methods of investigation in Sociology; scope and task of Sociology; some forms of social forces; social process, and social products; and certain sociological principles. This course is prescribed in the second year of the Commerce Course. May be taken as required Group V subject by all students in first year General Course.

Textbook: Macaraig, *Outlined Readings in Philippine Social Conditions*.

3 hours a week; either semester, credit 3 units.

Sociology 102 (Soc. 2); *SOCIAL PROBLEMS*.—The study of social problems such as pauperism, unemployment, child labor, immigration, crimes, feeble-mindedness, insanity, and industrial diseases in their relation to the business community. This course is prescribed in the third year of the Commerce Course. (Junior College Course.)

3 hours a week; either semester, credit 3 units.

### SPANISH

Mr. PACIENTE VILLA

Spanish 1 (Span 1); *ELEMENTARY SPANISH*.—A study of Spanish Grammar and Composition (one hour a week); supplemented by reading (one hour a week) and conversation (one hour a week).

Prerequisite: High-school Spanish or its equivalent.

Textbooks: *Gramatica Castellana (tercer grado) según los Principios de la Academia* (F. T. D.); Loiseaux's *Elementary Spanish Reader*, and Morley's *Spanish Humor in Story and Essay*, supplemented by Valdes' *Capitan Ribot*, Alarcon's *El Capitan Veneno*, and selected newspaper and magazines.

3 hours a week (Class); throughout the year, credit 6 units.

Spanish 2 (Span 2); *INTERMEDIATE SPANISH*.—Introduction to Spanish literature, with review exercises in grammar and translation.

Lectures on the development of Spanish history will be given as background for the work.

Prerequisite: Spanish 1 or its equivalent.

Textbooks: Rizal's *Noli Me Tangere*, selection from Cervantes' *Novelas Ejemplares*, Rizal's *El Filibusterismo*, Benavente's *El Palacio Triste*, and Calderon's *La Vida es Sueño*, supplemented by Galdos' *Doña Perfecta*, Alarcon's *El Capitan Veneno*, Morales' *El Sí de las Niñas*, Valera's *Pepita Jimenes*, Echagaray's *El Gran Galeoto*, and Zorrilla's *Don Juan Tenorio*.

3 hours a week (Class); throughout the year, credit 6 units.

## ZOOLOGY

Assistant Professor CONSTANCIO P. RUSTIA

Zoölogy 1; *INTRODUCTION TO PRINCIPLES OF ZOOLOGY*.—This course is designed to be introductory to medicine as well as to give a general introduction to zoölogy. The first half is devoted to the study of the gross anatomy, histology, physiology, habits, and embryology of the frog; the second half to the study of those lower organisms which are of general interest to students of zoölogy.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

Zoölogy 21 (Zoöl 21); *COMPARATIVE ANATOMY AND PHYLOGENY OF VERTEBRATES*.—Organs and systems and their phylogeny will be traced through various groups of vertebrates from a morphological and physiological point of view. Required course for students intending to study medicine. Others will be admitted.

Prerequisite: Zoölogy 1.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

Zoölogy 24 (Zoöl 24); *SYSTEMATIC ZOOLOGY*.—A general systematic survey of the animal kingdom and study of morphology, physiology, and distribution of animals. Training in classification and general and special methods of collecting and preserving animals. Primarily for Education students. Others admitted.

Prerequisite: Zoölogy 1 or its equivalent.

9 hours a week (6 Lab, 3 Class); one semester, credit 5 units.

## ATHLETICS

All regular students of the College are required to spend one hour a week in some form of athletic work under the supervision of a member of the faculty.

## MILITARY SCIENCE

Military Science and Tactics is a required subject in the curricula of all colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

## EXEMPTION

Exemption to athletics or military science must be secured during the first two weeks after registration. Students not exempted will be required to report as stated above and failure to pass the course will debar the student from graduation.

# The College of Education

## ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College:* Professor FRANCISCO BENITEZ

*Secretary:* Mr. M. M. CASTRO

## CHAIRMEN OF STANDING COMMITTEES

*Athletics:* Professor AGUSTIN ALONZO

*Catalogue:* Professor LOIS STEWART OSBORN

*Curriculum:* Professor LOIS STEWART OSBORN

*Graduate Study:* Dean FRANCISCO BENITEZ

*Schedule:* Professor LOIS STEWART OSBORN

*Scholarship:* Professor EMMA CONGER

*Student Activities:* Professor MARIA V. VENTURA

## BUSINESS DIRECTORY

**OFFICE OF THE DEAN:** The Office of the Dean is located in Room No. 35 on the third floor of University Hall.

**TELEPHONE CONNECTIONS:** The Dean's office may be reached from the outside by Tel. 2568 or by Phone No. 12 on the local exchange.

**CORRESPONDENCE:** Address all correspondence to the Dean, College of Education, University of the Philippines.

## STANDING COMMITTEES OF THE COLLEGE OF EDUCATION

### *Athletics*

Professor Agustin Alonzo  
Mr. Rodolfo W. Flores

### *Catalogue*

Professor Lois Stewart Osborn  
Professor Soledad Aguirre

### *Curriculum*

Professor Lois Stewart Osborn  
Professor Soledad Aguirre  
Professor Ramona S. Tirona

### *Graduate Study*

Dean Francisco Benitez  
Professor Agustin Alonzo

### *Schedule*

Professor Lois Stewart Osborn  
Professor Soledad Aguirre  
Mr. M. M. Castro

### *Scholarship*

Professor Emma Conger  
Miss Paz Gloria  
Miss Nieves Hidalgo

### *Student Activities*

Professor Maria V. Ventura  
Miss Emilia Malabanan  
Miss Ursula B. Uichanco  
Mr. Aurelio Ramos

## FACULTY OF INSTRUCTION

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**FRANCISCO BENITEZ, B.S., M.A.**,  
Dean and Professor of Education.

**LOIS STEWART OSBORN, B.S., M.A.**,  
Professor of Education.

**RAMONA S. TIRONA, B.A., B.S.E., M.A.**,  
Associate Professor of Home Economics.

**ISIDORO PANLASIGUI, B.A., M.A.**,  
Assistant Professor of Education and Psychology.

**MARIA V. VENTURA, B.A., B.S.E., M.A.**,  
Assistant Professor of Education.

**SOLEDAD AGUIRRE, B.A., B.S.E.**,  
Assistant Professor of Education.

**EMMA S. CONGER, B.A., M.A.**,  
Assistant Professor of Education.

**AGUSTIN S. ALONZO, B.A., B.S.E., M.A., Ph.D.**,  
Assistant Professor of Psychology.

**MELQUIADES M. CASTRO, B.S.E.**,  
Instructor in Education.

**PAS GLORIA, B.S.E., M.A.**,  
Instructor in Psychology.

**JOSEFA ABAYA, B.S., M.S.**,  
Instructor in Home Economics.

**URSULA B. UICHANCO, Ph.B., B.S.E.**,  
Instructor in Education.

**AURELIO C. RAMOS, M.A.**,  
Instructor in Education.

**MARCELA IGNACIO, H.T.C.**,  
Instructor in Education.

**EMILIA MALABANAN, M.A.**,  
Instructor.

**JUAN A. CABANOS, B.S.E.**,  
Instructor.

**ANICETO B. FABIA, Ph.B., B.S.E.**,  
Instructor.

**RODOLFO W. FLORES, B.S.E.**,  
Instructor.

**NIEVES HIDALGO, B.A.**,  
Instructor in Education.

**GABRIEL R. MANALAC, B.A., Pd.M.**,  
Professorial Lecturer on School Supervision and Principles of  
Teaching.

**FLORENTINO CAYCO, M.A.**,  
Professorial Lecturer on School Administration and Principles  
of Secondary Education.

# THE COLLEGE OF EDUCATION

## SCOPE AND AIMS

The purpose of the College of Education is to bring together and correlate all of the forces of the University which contribute in a professional way to the preparation of educational leaders in high schools, normal schools, supervisorships, and superintendencies.

The curriculum of the college is based upon the assumption that teachers should have first of all, and fundamental to all other preparation, a broad and liberal education; second, that they should be masters of some special subject or group of subjects which they expect to teach; and, third, that this training should be supplemented by professional education which shall give a new meaning to the subjects of instruction, and a knowledge of the pupils to be taught and the problems to be met.

## ADMISSION REQUIREMENTS

Candidates for admission to the College of Education must conform to the general requirements for admission of all university students.

## ADVANCED STANDING

Credit may be given for courses in psychology, education, and other subjects satisfactorily completed in recognized normal schools and colleges. Graduates of the Philippine Normal School will be given 12 units advanced credit, provided they have taught successfully in the Bureau of Education for at least one year. Graduates of provincial normal schools will be admitted as high school graduates with any conditions that seem necessary.

The following credit is given in the College of Education for subjects completed in the Philippine Normal School:

History of Education.....	3 units	(Educ. 1)
Observation and Teaching.....	8 units	(Educ. 5)
Psychology .....	3 units	(Psych. 1)
General Methods .....	3 units	(Educ. 2)
Educational Psychology .....	3 units	(Educ. 6)
School Administration .....	3 units	(Educ. 8)
Child Study .....	3 units	(Psych. 6)
School Supervision .....	3 units	(Educ. 12)
Educational Sociology .....	3 units	(Educ. 9)
Principles of Education.....	3 units	(Educ. 3)
Educational Tests and Measurements .....	3 units	(Elective)
English IV .....	3 units	(General credit)
English V .....	3 units	(General credit)
Dietetics and Advanced Physiology	3 units	(Home Econ. 8)
First Aid, Home Nursing, and		
Care of Children.....	3 units	(H. E. 32 and 33)
Sewing I, II, III.....	2 units	(Textiles and sewing)

The following credit is given in the College of Education for subjects in the provincial high school household arts course:

First Aid .....	3 units	(H. E. 32 and 33)
Sewing .....	1½ units	(½ Textiles and sewing)

The following credit is given in the College of Education for subjects completed in the provincial normal schools:

Practice Teaching .....	4 units	(½ Educ. 5)
Psychology .....	3 units	(Psych. 1)
History of Education.....	3 units	(Educ. 1)

When a student has received surplus entrance credit, there will be deducted from the hours required for graduation the number of hours his surplus entrance credit may warrant, and he will be considered to have been in residence for the period corresponding to the number of hours for which he is given credit on entrance.

A student admitted to the College of Education from another college of the University of the Philippines or from any other institution of collegiate rank shall be regarded as having completed the number of terms and hours to which his records entitle him. He will receive all the privileges of students who have completed the same number of terms and hours by residence in the college. In order, however, to obtain the degree of Bachelor of Science in Education he must have been in residence at least two semesters in the College of Education.

#### **SCHOLARSHIP RULES COVERING CONDITIONS AND FAILURES IN THE COLLEGE OF EDUCATION**

These rules shall operate automatically. Students coming under these rules may, in special cases, appeal within two weeks to the Committee on Scholarship. This committee is entrusted by the Faculty of the College of Education with the power to decide any special case by making allowance for extraordinary circumstances.

##### **I. PROBATION**

1. Any student who at the end of the semester receives in his final grades one 5 or two 4's shall be placed on probation the following semester. The period of probation is one semester; summer session is to be considered as a semester.

2. Any student on probation may register as a regular student carrying his regular amount of work.

##### **II. SUSPENSION**

1. Any student who at the end of the semester receives in his final grades two 5's or three 4's or one 5 and two 4's shall be suspended for one semester.

2. Any student who is on probation for the second time and who at the end of his second probation receives in his final grades one 5 or two 4's shall be suspended for one semester. In case of suspensions, the summer session is not considered as a semester.

##### **III. DISMISSAL**

1. Any student who at the end of the semester receives in his final grades three 5's or four 4's or two 5's and two 4's shall be dismissed from the College of Education.

2. Any student who has been once suspended and who for the second time makes himself liable to suspension shall be dismissed from the College of Education.

#### IV. IRREGULAR STUDENTS

Rules I, II, and III shall be applicable to any student carrying less than five subjects a semester. But in such a case delinquency shall be determined proportional to the actual amount of work being carried.

#### V. NOTICE OF DELINQUENCY

Notice of delinquency shall be sent to the student and to his parents or guardian. Such notice shall be sent and signed by the chairman of the Scholarship Committee.

#### FEES

A tuition fee of ₱25 a semester is charged to regular students, and of ₱5 a subject a semester to special students.

A tuition fee of ₱7.50 per subject is charged for the summer course.

A tuition fee of ₱40 a semester is charged in the University High School.

A fee of ₱2.50 a year is charged for library privileges.

A fee of 1.50 per semester is charged for athletics.

A fee of ₱1.50 a semester is charged for the *Collegian* and other student activities.

A fee of ₱5 a semester is charged in all laboratory or technical subjects giving 5 units of credit for a semester except Chemistry in which a fee of ₱15 is charged, and ₱10 a semester in those giving more than five units of credit a semester.

A fee of ₱5 is charged for delayed registration.

#### DEPOSITS

Each student of the Colleges of Education, Liberal Arts, Engineering, Agriculture, and Veterinary Science is required to deposit ₱15 in addition to the regular fees with the secretary on matriculation.

These deposits are for the purpose of covering any loss of apparatus supplies, books, etc., or any damage to University property which may properly become a charge against the students.

Whenever a charge is made against the deposit of a student, he is automatically required to deposit an additional sum sufficient to bring the deposit up to the original amount. At the beginning of each semester, as a prerequisite of registration, each student must be prepared to deposit such amount as may be necessary to bring his deposit up to the original amount of ₱15 or ₱20, in case any deduction has been made on account of loss or breakage.

#### SUMMER SESSION

The summer session of the College of Education is held in Baguio. It opens in the first week of April and lasts for five weeks. Students and teachers of the Bureau of Education and of private schools who are high school graduates are admitted as regular students. Other teachers of requisite age and experience are admitted as special students.

**MILITARY SCIENCE**

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

**REGISTRATION**

Beginning with the school year 1926-27, students entering the University from the high schools and intending to take work in the College of Education will register the *first year* in the College of Liberal Arts. At the beginning of the second year they will register in the College of Education. Before presenting themselves for registration at the beginning of the second year, students should decide what major subject they wish to take.

**SUMMARY OF ENROLLMENT DURING THE ACADEMIC YEAR**

1925-26

<i>College of Education</i>		<i>University High School</i>	
Fifth year.....	8	Fourth year.....	101
Fourth year.....	135	Third year.....	102
Third year.....	176	Second year.....	98
Second year.....	242	First year.....	110
First year.....	373		
Total.....	934	Total.....	411
		Grand total.....	1,345

**THE FOUR-YEAR CURRICULUM IN EDUCATION**

*Leads to the degree of Bachelor of Science in Education (B.S.E.). Open to graduates of approved Four-Year Secondary Schools*

**FIRST YEAR**

(Taken in the College of Liberal Arts)

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Engl 1 <sup>a</sup> .....	3	3	Engl 1.....	3	3
Lang 1 <sup>b</sup> .....	3	3	Lang 1 <sup>b</sup> .....	3	3
Lab Sc 1.....	5	5	Lab Sc 1.....	5	5
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Mil Science <sup>c</sup> .....	(3)	1½	Mil Science <sup>c</sup> .....	(3)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....		18½	Totals.....		18½

<sup>a</sup> For courses not given in the College of Education, see the catalogue of the College of Liberal Arts.

<sup>b</sup> Same language taken two years. Language 1 understood to mean beginners' course.

<sup>c</sup> Military science and tactics is a required subject for all physically fit male students during their first and second years in the University. The advanced course for students in the third year is elective for those who have successfully completed the basic course. Credits for military science and tactics during the first two years is three units a year.

## SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl.....	3	3	Elec in Engl.....	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ I.....	3	3
Psychology 1.....	3	3	Psychology 3 <sup>d</sup> .....	3	3
Maj Subject.....	3	3	Maj Subject.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....		<b>16½</b>	Totals.....		<b>16½</b>

<sup>d</sup> Psychology 3 (Old number Psychology 8).

Group V (Liberal Arts General Curricula) includes Anthropology, Economics, Education, Geography, History, Journalism, Library Science, Philosophy, Political Science, Psychology, Sociology.

## THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl.....	3	3	Elec in Engl.....	3	3
Elective.....	3	3	Elective.....	3	3
Education 6.....	3	3	Education 2.....	3	3
Min Subject <sup>a</sup> .....	3	3	Min Subject <sup>d</sup> .....	3	3
Maj Subject.....	3	3	Maj Subject.....	3	3
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....		<b>15</b>	Totals.....		<b>15</b>

## FOURTH YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Educ 3.....	3	3	Educ 3.....	3	3
Educ 4.....	3	3	Educ 4.....	3	3
Educ 9.....	3	3	Educ 8 or.....	3	3
Elective <sup>e</sup> .....	3	3	Educ 12.....	(3)	(3)
Observation and Practice Teaching.....		4	Elective.....	3	3
Phys Educ.....	(1)	---	Observation and Practice Teaching.....		4
Totals.....		<b>16</b>	Phys Educ.....	(1)	---
			Total.....		<b>16</b>

<sup>a</sup> For courses not given in the College of Education, see the catalogue of the College of Liberal Arts.

<sup>d</sup> Any student who desires to take two years of French or German in order to meet the language requirements for an advanced degree, may take his minor subject in the fourth year in place of a free elective.

<sup>e</sup> A student may take one semester or one year of language or any free elective.

Observation and Practice Teaching includes Education 5.

**MAJOR COURSES**

Students in the College of Education may major in one of the following subjects: English, mathematics, history, geography, biology, physics, economics, library science, home economics, Spanish, and physical education.

Students in the College of Education may minor in any of the subjects mentioned as majors. Government (political science) may be taken as a minor.

Graduate courses in professional subjects dealing with administration and supervision will be offered for candidates for the M.A. degree.

**BIOLOGY MAJORS****FIRST YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Engl 1.....	3	3	Engl 1.....	3	3
Language 1.....	3	3	Language 1.....	3	3
Lab Sc (Botany 4).....	9	5	Lab Sc (Botany 4).....	9	5
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	1	—	Phys Educ.....	(1)	—
<b>Totals.</b> .....		<b>18½</b>	<b>Totals.</b> .....		<b>18½</b>

**SECOND YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl (Educ 20).....	3	3	Elec in Engl (Educ 20).....	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3.....	3	3
Maj Sub (Zoöl 1).....	6	5	Maj Sub (Zoöl 24).....	6	5
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)	—	Phys Educ.....	(3)	—
<b>Totals.</b> .....		<b>18½</b>	<b>Totals.</b> .....		<b>18½</b>

(Same language taken two years. Language 1 understood to mean beginners' course.)

**THIRD YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elective in Engl.....	3	3	Elective in Engl.....	3	3
Elective.....	3	3	Elective.....	3	3
Educ 6.....	3	3	Educ 2.....	3	3
Minor Subject.....	3	3	Minor Subject.....	3	3
Elective (Educ 80).....	3	3	Elective in Maj Sub.....	3	5
Phys Educ.....	(1)	—	Phys Educ.....	(1)	—
<b>Totals.</b> .....		<b>15</b>	<b>Totals.</b> .....		<b>15</b>

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Educ 3.....	3	3	Educ 3.....	3	3
Educ 4.....	3	3	Educ 4.....	3	3
Educ 9.....	3	3	Educ 12 or.....	3	3
Elective.....	3	3	Educ 8.....	(3)	(3)
Ob and Practice Teaching <sup>1</sup> .....	4		Elective.....	3	3
Phys Educ.....	(1)		Ob and Practice Teaching <sup>1</sup> .....	4	
Totals.....		16	Phys Educ.....	(1)	
			Totals.....		16

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Twenty-eight units of the major subject (including three units of the Teaching of biology) are required of students majoring in biology:

Biology majors who have completed Zoölogy in the first year should take Botany 4 in the second year. Botany 2 or Botany 6 is equivalent to Botany 4.

Recommended electives: Botany 101, credit 3 units; choose among Zoöl 112, Zoöl 21, Zoöl 105, Zoöl 106, Zoöl 115, Zoöl 116, credit 5 units, or Zoöl 107, credit 6 units.

Education 80 (The Teaching of Biology.)

## ENGLISH MAJORS

## FIRST YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
English 1.....	3	3	English 1.....	3	3
Language 1.....	3	3	Language 1.....	3	3
Lab Science 1.....	5		Lab Science 1.....	5	
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)		Phys Educ.....	(1)	
Totals.....		18½	Totals.....		18½

## SECOND YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Elec in Engl (Educ 20).....	3	3	Elec in Engl (Educ 20).....	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3.....	3	3
Maj Sub (Engl 3).....	3	3	Maj Sub (Engl 3).....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)		Phys Educ.....	(1)	
Totals.....		16½	Totals.....		16½

(Same language taken two years. Language 1 understood to mean beginners' course.)

## THE COLLEGE OF EDUCATION

## THIRD YEAR

	<i>First Semester</i>			<i>Second Semester</i>	
	Hours	Units		Hours	Units
Elec in Engl (Engl 8 or 9)	3	3	Elec in Engl (Engl 107)	3	3
Elective	3	3	Elective	3	3
Educ 6	3	3	Educ 2	3	3
Minor Subject	3	3	Minor Subject	3	3
Maj Sub (Educ 21)	3	3	Maj Sub (Educ 21)	3	(3)
Phys Educ	(3)	---	Phys Educ	(3)	---
Totals	15		Totals	15	

## FOURTH YEAR

	<i>First Semester</i>			<i>Second Semester</i>	
	Hours	Units		Hours	Units
Educ 3	3	3	Educ 3	3	3
Educ 4	3	3	Educ 4	3	3
Educ 9	3	3	Educ 12 or	3	3
Elective	3	3	Educ 8	(3)	(3)
Ob and Practice Teach- ing <sup>1</sup>	4		Elective	3	3
Phys Educ	(1)	---	Ob and Practice Teach- ing 1 <sup>1</sup>	4	
Totals	16		Phys Educ	(1)	---
			Totals	16	

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Thirty-six units of English (including education in English) are required of students majoring in English.

Required courses: English 1, English 8 or 9 (either of which may be substituted for the former course English 2), English 3, English 107, (formerly Eng 207), Education 20, Education 21.

Recommended electives: Education 122, English 123.

## ECONOMICS MAJORS

## FIRST YEAR

	<i>First Semester</i>			<i>Second Semester</i>	
	Hours	Units		Hours	Units
English 1	3	3	English 1	3	3
Language 1	3	3	Language 1	3	3
Lab Science 1	5		Lab Science	5	
Group V elective	3	3	Group V elective	3	3
Soc Science 1	3	3	Soc Science 1	3	3
Mil Science	(3)	1½	Mil Science	(3)	1½
Phys Educ	(1)	---	Phys Educ	(1)	---
Totals	18½		Totals	18½	

## SECOND YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Elec in Engl (Educ 20) .....	3	3	Elec in Engl (Educ 20) .....	3	3
Language 2 .....	3	3	Language 2 .....	3	3
Educ A .....	3	3	Educ 1 .....	3	3
Psychology 1 .....	3	3	Psychology 3 .....	3	3
Maj Sub (Econ 1) .....	3	3	Maj Sub (Econ 2) .....	3	3
Mil Science .....	(3)	1½	Mil Science .....	(3)	1½
Phys Educ. ....	(1)	—	Phys Educ. ....	(1)	—
Totals.....		16½	Totals.....		16½

(Some language taken two years. Language 1 understood to mean beginners' course.)

## THIRD YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Elective in English.....	3	3	Elective in English.....	3	3
Elective.....	3	3	Elective.....	3	3
Educ 6 .....	3	3	Educ 2 .....	3	3
Minor Subject.....	3	3	Minor Subject.....	3	3
Major Sub (Educ 30) .....	3	3	Maj Sub (Econ 3 or Econ 4) .....	3	3
Phys Educ. ....	(1)	—	Phys Educ. ....	(1)	—
Totals.....		15	Totals.....		15

## FOURTH YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Educ 3 .....	3	3	Educ 3 .....	3	3
Educ 4 .....	3	3	Educ 4 .....	3	3
Educ 9 .....	3	3	Educ 12 or .....	3	3
Elective .....	3	3	Educ 8 .....	(3)	(3)
Ob and Practice Teach- ing <sup>1</sup> .....	—	4	Elective .....	3	3
Phys Educ. ....	(1)	—	Ob and Practice Teach- ing <sup>1</sup> .....	—	4
Totals.....		16	Phys Educ. ....	(1)	—
			Totals.....		16

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Fifteen units of economics (including the teaching of economics), are required of students majoring in economics. Electives recommended for the fourth year: Economics 15 (History of Economic Thought), economics 6 (Public Finance). Credit 3 units each.

Education 30 (Formerly Economics 30. Old number Econ 21)

## THE COLLEGE OF EDUCATION

## GEOGRAPHY MAJORS

## FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
English 1.....	3	3	English 1.....	3	3
Language 1.....	3	3	Language 1.....	3	3
Lab Science 1.....		5	Lab Science 1.....		5
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)		Phys Educ.....	(1)	
<b>Totals.....</b>		<b>18½</b>	<b>Totals.....</b>		<b>18½</b>

(Same language taken two years. Language 1 understood to mean beginners' course.)

## SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl (Ed 20).....	3	3	Elec in Engl (Ed 20).....	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3.....	3	3
Maj Sub (Geog 107).....	3	3	Maj Sub (Geog 106).....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)		Phys Educ.....	(1)	
<b>Totals.....</b>		<b>16½</b>	<b>Totals.....</b>		<b>16½</b>

## THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elective in Engl.....	3	3	Elective in Engl.....	3	3
Elective (Educ 71).....	3	3	Elective.....	3	3
Educ 6.....	3	3	Educ 2.....	3	3
Minor Sub.....	3	3	Minor Sub.....	3	3
Maj Sub (Educ 70).....	3	3	Maj Sub (Educ 70).....	3	3
Phys Educ.....	(1)		Phys Educ.....	(1)	
<b>Totals.....</b>		<b>15</b>	<b>Totals.....</b>		<b>15</b>

## FOURTH YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Educ 3.....	3	3	Educ 3.....	3	3
Educ 4.....	3	3	Educ 4.....	3	3
Educ 9.....	3	3	Educ 12 or.....	3	3
Geography 105.....	3	3	Educ 8.....	(3)	(3)
Ob and Practice Teach- ing <sup>1</sup> .....		4	Geography 201.....	3	3
Phys Educ.....	(1)		Ob and Practice Teach- ing <sup>1</sup> .....		4
<b>Totals.....</b>		<b>16</b>	<b>Phys Educ.....</b>	(1)	
			<b>Totals.....</b>		<b>16</b>

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Eighteen units of geography (including the teaching of geography) and three units of Education 71 (the teaching of General Science) are required, but students majoring in geography are advised to elect Geog 101, Geog 102 or Geog 103.

Education 70 is equivalent to Geography 104A and Geography 104B.

### HISTORY MAJORS WITH POLITICAL SCIENCE MINOR

#### FIRST YEAR

	<i>First Semester</i>			<i>Second Semester</i>	
	Hours	Units		Hours	Units
English 1	3	3	English 1	3	3
Language 1	3	3	Language 1	3	3
Lab Science 1		5	Lab Science 1		5
Group V elective	3	3	Group V elective	3	3
Soc Science 1	3	3	Soc Science 1	3	3
Mil Science	(3)	1½	Mil Science	(3)	1½
Phys Educ	(1)	—	Phys Educ	(1)	—
Totals	—	18½	Totals	—	18½

#### SECOND YEAR

	<i>First Semester</i>			<i>Second Semester</i>	
	Hours	Units		Hours	Units
Elec in Engl (Educ 20)	3	3	Elec in Engl (Educ 20)	3	3
Language 2	3	3	Language 2	3	3
Educ A	3	3	Educ 1	3	3
Psychology 1 Maj Sub (Hist 25)	3	3	Psychology 3 Maj Sub (Hist 26)	3	3
Mil Science	(3)	1½	Mil Science	(3)	1½
Phys Educ	(1)	—	Phys Educ	(1)	—
Totals	—	16½	Totals	—	16½

(Same language taken two years. Language 1 understood to mean beginners' course.)

#### THIRD YEAR

	<i>First Semester</i>			<i>Second Semester</i>	
	Hours	Units		Hours	Units
Elective in Engl	3	3	Elective in Engl	3	3
Education 40	3	3	Education 40	3	3
Educ 6	3	3	Educ 2	3	3
Minor Sub (Pol Sc 4)	3	3	Minor Sub (Pol Sc Elec)	3	3
Maj Sub (Hist 107 or 4)	3	3	Maj Sub (Hist 108 or 109)	3	3
Phys Educ	(1)	—	Phys Educ	(1)	—
Totals	—	15	Totals	—	15

## FOURTH YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Educ 3.....	3	3	Educ 3.....	3	3
Educ 4.....	3	3	Educ 4.....	3	3
Educ 9.....	3	3	Educ 12 or.....	3	3
Hist 1.....	3	3	Educ 8.....	(3)	(3)
Ob and Practice Teach- ing <sup>1</sup> .....	4		Ob and Practice Teach- ing <sup>1</sup> .....	4	
Phys Educ.....	(1)		Phys Educ.....	(1)	
Totals.....		16	Totals.....		16

<sup>1</sup> Observation and Practice Teaching includes Education 5.

History majors are required to complete 30 units of History and 6 units of political science. Required courses: History 2, 5, 25, 26, 121, 1, 3, (107 or 4) and (108 or 109).

Education 40 (Formerly History 121).

## HOME ECONOMICS MAJORS WITH BIOLOGY MINOR

## FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
English 1.....	3	3	English 1.....	3	3
Language 1.....	3	3	Language 1.....	3	3
Lab Science 1 <sup>a</sup> .....	5		Lab Science 1 <sup>a</sup> .....	5	
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Phys Educ.....	(1)		Phys Educ.....	(1)	
Totals.....		17	Totals.....		17

## SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl (Educ 20) ..	3	3	Elec in Engl (Educ 20) ..	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3 .....	3	3
Maj Sub (Tex and Sew) ..	3	3	Maj Sub (Home Econ 31) ..	3	3
Phys Educ.....	(1)		Phys Educ.....	(1)	
Totals.....		15	Totals.....		15

(Same language taken two years. Language 1 understood to mean beginners' course.)

<sup>a</sup> Chemistry 22 (8 units) is required of all students majoring in home economics. If the student elects it for her laboratory science, in the first year, she should elect biology for her minor subject. This arrangement will not only complete the number of units required (10) in laboratory science, but will also enable her to get a course essential to home economics.

## THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elective in Engl.....	3	3	Elective in Engl.....	3	3
Home Econ 15 and 17..	3	3	Home Econ 18 and 20..	3	3
Educ 6 .....	3	3	Educ 2 .....	3	3
Minor Sub <sup>b</sup> .....	3	3	Minor Sub <sup>b</sup> .....	3	3
Maj Sub (Home Ec 1) ..	3	3	Maj Sub (Home Econ 2) ..	3	3
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
<b>Totals.....</b>	<b>15</b>		<b>Totals.....</b>	<b>15</b>	

## FOURTH YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Educ 3.....	3	3	Educ 3.....	3	3
Educ 4.....	3	3	Educ 4.....	3	3
Educ 9.....	3	3	Educ 12 or.....	3	3
Home Econ 32 and 33..	3	3	Educ 8.....	(3)	(3)
Ob and Practice Teach- ing <sup>c</sup> .....	-----	4	Ob and Practice Teach- ing <sup>c</sup> .....	-----	4
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
<b>Totals.....</b>	<b>16</b>		<b>Totals.....</b>	<b>16</b>	

<sup>b</sup> Students who have elected botany or zoölogy in the first year should take Chemistry 22 in the third year. The credits in botany or zoölogy may be used to fulfill the requirements for the minor.

<sup>c</sup> Observation and Practice Teaching includes Education 5.

## LIBRARY SCIENCE MAJORS

## FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
English 1.....	3	3	English 1.....	3	3
Language 1.....	3	3	Language 1.....	3	3
Lab Science 1.....	-----	5	Lab Science 1.....	-----	5
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
<b>Totals.....</b>	<b>18½</b>		<b>Totals.....</b>	<b>18½</b>	

## SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl (Educ 20) ..	3	3	Elec in Engl (Educ 20) ..	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3.....	3	3
Maj Sub (Lib Sc 21) ..	3	3	Maj Sub (Lib Sc 23) ..	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
<b>Totals.....</b>	<b>16½</b>		<b>Totals.....</b>	<b>16½</b>	

(Same language taken two years. Language 1 understood to mean beginners' course.)

## THE COLLEGE OF EDUCATION

## THIRD YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Elec in Engl.	3	3	Elec in Engl.	3	3
Elective	3	3	Elective	3	3
Educ 6	3	3	Educ 2	3	3
Minor Subject	3	3	Minor Subject	3	3
Maj Sub (Lib Sc 22)	3	3	Maj Sub (Lib Sc 24)	3	3
Phys Educ	(1)		Phys Educ	(1)	
Totals		15	Totals		15

## FOURTH YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Educ 3	3	3	Educ 3	3	3
Educ 4	3	3	Educ 4	3	3
Educ 9	3	3	Educ 12 or	3	3
Lib Sc 115	3	3	Educ 8	(3)	(3)
Ob and Practice Teach- ing <sup>1</sup>		4	Lib Sc 115	3	3
Phys Educ	(1)		Ob and Practice Teach- ing <sup>1</sup>		4
Totals		16	Phys Educ	(1)	
			Totals		16

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Eighteen units of library science are required of students majoring in library science.

Library Science 107 is recommended as an elective.

## MATHEMATICS MAJORS

## FIRST YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
English 1	3	3	English 1	3	3
Language 1	3	3	Language 1	3	3
Lab Science 1		5	Lab Science 1		5
Math 1	3	3	Math 4	3	3
Soc Science 1	3	3	Soc Science 1	3	3
Mil Science	(3)	1½	Mil Science	(3)	1½
Phys Educ	(1)		Phys Educ	(1)	
Totals		18½	Totals		18½

## MAJOR COURSES: MATHEMATICS

193

## SECOND YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Elec in Engl (Educ 20) ..	3	3	Elec in Engl (Educ 20) ..	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3.....	3	3
Maj Sub (Math 13).....	5	5	Maj Sub (Math 10).....	5	5
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ .....	(1)	---	Phys Educ.....	(1)	---
Totals.....		18½	Totals.....		18½

(Same language taken two years. Language 1 understood to mean beginners' course.)

## THIRD YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Elec in Engl.....	3	3	Elec in Engl.....	3	3
Math 111.....	3	3	Math 151.....	5	5
Educ 6.....	3	3	Educ 2.....	3	3
Minor Subject.....	3	3	Minor Subject.....	3	3
Maj Sub (Ed 50).....	3	3	Maj Sub (Ed 50).....	3	3
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....		15	Totals.....		17

## FOURTH YEAR

*First Semester**Second Semester*

	Hours	Units		Hours	Units
Educ 3.....	3	3	Educ 3.....	3	3
Educ 4.....	3	3	Educ 4.....	3	3
Educ 9.....	3	3	Educ 12 or.....	3	3
Elective.....	3	3	Educ 8.....	(3)	(3)
Ob and Practice Teach- ing <sup>1</sup> .....	-----	4	Ob and Practice Teach- ing <sup>1</sup> .....	-----	4
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....		16	Totals.....		16

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Twenty-four units of mathematics and 6 units of the teaching of mathematics (Education 50) are required of students majoring in mathematics.

Recommended electives: Math 115 and Math 125.

## THE COLLEGE OF EDUCATION

**PHYSICAL EDUCATION MAJOR****FIRST YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
English 1.....	3	3	English 1.....	3	3
Language 1.....	3	3	Language 1.....	3	3
Lab Science.....	-----	5	Lab Science.....	-----	5
Group V, elective.....	3	3	Group V, elective.....	3	3
Soc Science 1 .....	3	3	Soc Science 1 .....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....	-----	18½	Totals.....	-----	18½

**SECOND YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl (Educ 20)....	3	3	Elec in Engl (Educ 20)....	3	3
Language 2.....	3	3	Language 2.....	3	3
Educ A <sup>1</sup> .....	3	3	Educ 1 <sup>1</sup> .....	3	3
Psych 1.....	3	3	Psych 3.....	3	3
Maj Sub (Phys Ed 51)....	3	3	Maj Sub (Phys Ed 52)....	3	3
Phys Educ 53.....	3	3	Phys Educ 54.....	3	3
Mil Science.....	3	1½	Mil Science.....	3	1½
Totals.....	-----	19½	Totals.....	-----	19½

**THIRD YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elective in Engl.....	3	3	Elective in Engl.....	3	3
Phys Educ 55.....	3	1	Phys Educ 57.....	3	1
Education 6.....	3	3	Education 2.....	3	3
Minor Subject.....	3	3	Minor subject.....	3	3
Maj Sub (Phys Ed 56)....	3	3	Maj Sub (Phys Ed 58)....	3	3
Totals.....	-----	13	Totals.....	-----	13

**FOURTH YEAR**

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Education 3.....	3	3	Education 3.....	3	3
Education 4.....	3	3	Education 4.....	3	3
Education 9.....	3	3	Educ 8 or.....	-----	-----
Phys Educ 59.....	3	3	Educ 12.....	(3)	(3)
Ob and Prac Teach.....	-----	4	Phys Educ 60.....	3	3
Totals.....	-----	16	Ob and Prac Teach.....	-----	4
			Totals.....	-----	16

<sup>1</sup> Students majoring in physical education are advised to take Educ. A and Educ. 1 during their third year as the addition of a three-unit course in physical education together with military science makes the second year very much heavier than the third year.

# MAJOR COURSES: PHYSICS

195

## PHYSICS MAJORS

### FIRST YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
English 1-----	3	3	English 1-----	3	3
Language 1-----	3	3	Language 1-----	3	3
Lab Sc-----	9	5	Lab Sc-----	9	5
Elective (Math 1)-----	3	3	Elective (Math 4)-----	3	3
Soc Science 1-----	3	3	Soc Science 1-----	3	3
Mil Science-----	(3)	1½	Mil Science-----	(3)	1½
Phys Educ-----	(1)	---	Phys Educ-----	(1)	---
<b>Totals.....</b>		<b>18½</b>	<b>Totals.....</b>		<b>18½</b>

### SECOND YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Elec in Engl (Educ 20)-----	3	3	Elec in Engl (Educ 20)-----	3	3
Language 2-----	3	3	Language 2-----	3	3
Educ A-----	3	3	Educ 1-----	3	3
Psychology 1-----	3	3	Psychology 3-----	3	3
Maj Sub (Phys 2) <sup>1</sup> -----	---	5	Maj Sub (Phys 2) <sup>1</sup> -----	---	5
Mil Science-----	(3)	1½	Mil Science-----	(3)	1½
Phys Educ-----	(1)	---	Phys Educ-----	(1)	---
<b>Totals.....</b>		<b>18½</b>	<b>Totals.....</b>		<b>18½</b>

(Same language taken two years. Language 1 understood to mean beginners' course.)

### THIRD YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Elective in Engl-----	3	3	Elective in Engl-----	3	3
Elective-----	3	3	Elective-----	3	3
Educ 6-----	3	3	Educ 2-----	3	3
Minor Subject-----	3	3	Minor Subject-----	3	3
Maj Sub (Phys 103)-----	---	5	Maj Sub (Phys 104)-----	---	5
Phys Educ-----	(1)	---	Phys Educ-----	(1)	---
<b>Totals.....</b>		<b>17</b>	<b>Totals.....</b>		<b>17</b>

### FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Educ 3-----	3	3	Educ 3-----	3	3
Educ 4-----	3	3	Educ 4-----	3	3
Teach Course in Phys (Educ 60)-----	---	3	Educ 12 or-----	3	3
Education 9-----	---	3	Educ 8-----	(3)	(3)
Ob and Prac Teach <sup>2</sup> -----	---	4	Elective-----	3	3
Phys Educ-----	(1)	---	Ob and Prac Teach <sup>2</sup> -----	---	4
<b>Totals.....</b>		<b>16</b>	<b>Totals.....</b>		<b>16</b>

<sup>1</sup> Education students may take Physics 2M lectures (3 units) and Physics 2E laboratory (2 units).

<sup>2</sup> Observation and practice teaching includes Education 5.

Twenty units of physics and three units of the teaching of physics are required of students majoring in physics.

Physics 101 (formerly Physics 25) and Physics 102 (Modern Physics) are recommended as electives.

### SPANISH MAJORS

#### FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
English 1.....	3	3	English 1.....	3	3
Lan 1 (Spanish 1 Educ.)..	3	3	Lan 1 (Spanish 1 Educ)..	3	3
Lab Science.....	-----	5	Lab Science.....	-----	5
Group V elective.....	3	3	Group V elective.....	3	3
Soc Science 1.....	3	3	Soc Science 1.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(1)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....	-----	18½	Totals.....	-----	18½

#### SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elec in Engl (Educ 20)....	3	3	Elec in Engl (Educ 20)....	3	3
Lan 2 (Spanish 2 Educ)....	3	3	Lan 2 (Spanish 2 Educ)....	3	3
Educ A.....	3	3	Educ 1.....	3	3
Psychology 1.....	3	3	Psychology 3.....	3	3
Elective.....	3	3	Elective.....	3	3
Mil Science.....	(3)	1½	Mil Science.....	(3)	1½
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....	-----	16½	Totals.....	-----	16½

(Same language taken two years. Language 1 understood to mean beginners' course.)

#### THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Elective in Engl.....	3	3	Elective in Engl.....	3	3
Elective.....	3	3	Elective.....	3	3
Educ 6.....	3	3	Educ 2.....	3	3
Minor Subject.....	3	3	Minor Subject.....	3	3
Major Sub (Spanish)....	3	3	Major Sub (Spanish)....	3	3
Phys Educ.....	(1)	---	Phys Educ.....	(1)	---
Totals.....	-----	15	Totals.....	-----	15½

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Educ 3	3	3	Educ 3	3	3
Educ 4	3	3	Educ 4	3	3
Educ 9	3	3	Educ 12 or	3	3
Elective (Spanish)	3	3	Educ 8	(3)	(3)
Ob and Prac Teach <sup>1</sup>		4	Elective (Spanish)	3	3
Phys Educ	(1)	---	Ob and Prac Teach <sup>1</sup>		4
<b>Totals</b>		<b>16</b>	Phys Educ	(1)	---
			<b>Totals</b>		<b>16</b>

<sup>1</sup> Observation and Practice Teaching includes Education 5.

Twenty-four units of Spanish are required of students majoring in Spanish.

Students majoring in Spanish who have elected Spanish in the first year may substitute "free elective" for "major subject" in the second year.

Students who have studied Spanish in the high school or elsewhere, and are able to take advanced Spanish, are permitted to substitute other courses in Spanish for Spanish 1 and Spanish 2.

Students who have elected French or German in the first and second years, will be required to carry two courses of Spanish in the fourth year.

## COURSES OF INSTRUCTION

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### DEPARTMENT OF EDUCATION

FRANCISCO BENITEZ, *Dean and Head of the Department.*

LOIS STEWART OSBORN, *Professor of Education.*

ISIDORO PANLASIGUI, *Assistant Professor.*

SOLEDAD AGUIRRE, *Assistant Professor.*

EMMA S. CONGER, *Assistant Professor.*

MARIA VALDEZ-VENTURA, *Assistant Professor*

M. M. CASTRO, *Instructor.*

NIEVES HIDALGO, *Instructor.*

URSULA B. UICHANCO, *Instructor.*

AURELIO C. RAMOS, *Instructor.*

ANICETO B. FABIA, *Instructor.*

GABRIEL R. MAÑALAC, *Professorial Lecturer.*

FLORENTINO CAYCO, *Professorial Lecturer.*

### UNDERGRADUATE COURSES

**Education A. INTRODUCTION TO EDUCATION.**—This course aims to introduce the student to the study of education. It is a survey course and aims to do for education what general science does for later specialized courses in science. The course deals with teaching as a profession, the child as an object of study, the curriculum, the necessity for good methods, the public school organization, educators of the past and present, and many other major problems that are met in the field of education. The purpose of the course is to prepare the student for specialized study to come later. Required for second year students.

3 hours a week; first semester, credit 3 units.

**Education 1 (Educ. 1); HISTORY OF EDUCATION.**—The growth and development of educational doctrine into its modern form. Required second semester, second year.

3 hours a week, second semester, credit 3 units.

**Education 2 (Educ 2); PRINCIPLES OF TEACHING.**—A study of the fundamental ideas and their application to the more common subjects of the course of study. Required second semester, third year.

Prerequisite: Psychology 1.

3 hours a week; second semester, credit 3 units.

**Education 3 (Educ. 3); PRINCIPLES OF EDUCATION.**—An interpretation of the aims and problems of education from the standpoint of society. Required fourth year.

3 hours a week; throughout the year, credit 6 units.

**Education 4 (Educ 4); PRINCIPLES OF SECONDARY EDUCATION.**—Required fourth year.

3 hours a week; throughout the year, credit 6 units.

**Education 5 (Educ 5); PRACTICE TEACHING.**—Under supervision of the College of Education. Open only to students who have completed the work of the first two years of a course in the College of Education or accepted equivalents, and who are at the same time pursuing other work in this college. Required fourth year.

Throughout the year; credit 8 units.

**Education 6 (Educ 6); EDUCATIONAL PSYCHOLOGY.**—This course begins with a systematization on the genetic principle and extension of the data of Psychology 1. The work is accompanied and followed by the application of this enlarged body of psychological knowledge to the problems of education. Lectures, reading, extensive written exercises, and experiments.

Prerequisite: Psychology 1.

3 hours a week; first semester, credit 3 units.

**Education 7 (Educ 7); COMPARATIVE EDUCATION.**—A study of the educational systems of England, France, Germany, and Japan. Elective.

3 hours a week; throughout the year, credit 6 units.

**Education 8 (Educ 8); EDUCATIONAL ADMINISTRATION.**—With special reference to the administration of the public school system of the Philippine Islands. Fourth year.

3 hours a week; either semester, credit 3 units.

**Education 9 (Educ 9); EDUCATIONAL SOCIOLOGY.**—Social foundations of the school system. A systematic presentation of the relations of public education to society, being a special application of modern social theory and knowledge to the problems of social welfare as achieved through the public school system. Lectures, readings, and discussions.

3 hours a week; either semester, credit 3 units.

**Education 11 (Educ 11); PRINCIPLES OF INDUSTRIAL EDUCATION.**—Not offered in 1926-27.

3 hours a week; either semester, credit 3 units.

**Education 12 (Educ 12); SUPERVISION OF INSTRUCTION IN THE PUBLIC SCHOOLS.**—This course will consider the guiding principles for the supervision of the different subjects in the curriculum; constructive criticism of class work of teachers; methods of measuring efficiency; supervision of discipline. Lectures, required readings and discussions. Fourth year.

3 hours a week; either semester, credit 3 units.

**Education 20 (Educ 20); FUNDAMENTALS IN ENGLISH FOR TEACHERS.**—This course aims; (a) to improve the spoken English by training the students in pronunciation and enunciation, (b) to teach the use of reference books, (c) to give a review of grammar and the mechanics of writing, (d) to train the taste and enlarge the scope of reading for pleasure.

3 hours a week; throughout the year, credit 6 units.

**Education 21 (Educ 21); THE TEACHING OF ENGLISH IN SECONDARY SCHOOLS.**—This course consists of: (a) a study of the subject matter in English prescribed in the course of study for high schools, first and second years; (b) a study of methods of teaching English; and (c) observation and discussion of class work in secondary English.

Prerequisites: English 1 and Education 20.

3 hours a week; throughout the year; credit 6 units.

**Education 122 (Educ 122); PRACTICUM IN THE TEACHING OF ENGLISH IN SECONDARY SCHOOLS.**—This course consists of lectures, readings, and discussions; a study of material with special reference to courses of study, determination of minimum essentials, and measurement of attainment. Subject matter in English prescribed in the course of study for high schools, third and fourth years.

Prerequisite: Education 21.

3 hours a week; throughout the year; credit 6 units.

**Education 30 (Educ 30) (Formerly Economics 30) (Old number, Economics 21); THE TEACHING OF ECONOMICS IN SECONDARY SCHOOLS.**—Brief review of fundamental principles. Survey of the high school texts prescribed by the course of study. Connection of economics with other subjects in the curriculum. Methods of teaching and of stimulating interest in the subjects. Required of students majoring in economics.

3 hours a week; either semester; credit 3 units.

**Education 40 (Educ 40) (Formerly History 121); THE TEACHING OF HISTORY IN THE SECONDARY SCHOOLS.**—This course consists of a study of the subject matter in history prescribed for Philippine high schools, and a study of methods, materials, and aids in teaching history. Required of students majoring in history.

3 hours a week; throughout the year; credit 6 units.

**Education 50 (Formerly Math 50); THE TEACHING OF MATHEMATICS.**—A training course for actual or prospective teachers of secondary mathematics. Review of basic principles; solution of difficult problems, study of methods, discussion of text, and practice teaching. Open to Senior College students and to those taking the course in education.

3 hours a week; throughout the year, credit 6 units.

**Education 60 (Educ 60); THE TEACHING OF PHYSICS.**—This course consists of a study of the subject matter prescribed in the course for secondary schools, the materials used in the course, and methods of teaching physics in the high schools.

3 hours a week; either semester; credit 3 units.

**Education 70 (Educ 70) (Formerly Geography 104A and 104B); THE TEACHING OF GEOGRAPHY.**—This course considers the aims, materials, methods and supervision of the teaching of geography, and the relation of geography to other courses in the curriculum. Lectures and readings.

3 hours a week; throughout the year; credit 6 units.

**Education 71 (Educ 71); THE TEACHING OF GENERAL SCIENCE.**—This course consists of: (a) a study of the subject matter in

general science prescribed in the course of study for high schools; (b) a study of methods of teaching general science; and (c) observation and discussion of class work in general science. Required of all students majoring in geography.

3 hours a week; either semester; credit 3 units.

**Education 80 (Educ 80); THE TEACHING OF BIOLOGY.**—This course consists of: (a) a study of the subject matter in biology prescribed in the course of study for secondary schools and (b) a study of methods of teaching biology. Required of students majoring in biology.

3 hours a week; either semester; credit 3 units.

#### GRADUATE COURSES

**Education 200 (Educ 200); MODERN EDUCATIONAL THEORIES.**—A critical consideration of the writings of Froebel, Herbart, and Dewey. Elective.

3 hours a week; throughout the year; credit 6 units.

**Education 201 (Educ 201); PRACTICUM-COMPARATIVE EDUCATION.**—A comparative study of the school systems of China, Japan, the United States, and the Philippines. Lectures and readings.

3 hours a week; throughout the year; credit 6 units.

### DEPARTMENT OF PSYCHOLOGY

Dr. AGUSTIN S. ALONZO (Acting Head); Assistant Professor PANLASIGUI,<sup>1</sup>  
Miss GLORIA, Mr. FLÓRES

#### UNDERGRADUATE COURSES

**Psychology 1 (Psych 1) ELEMENTARY PSYCHOLOGY.**—Lectures, experiments, recitations, and written exercises calculated to impress upon the beginner the principles of the science of psychology. Required of second-year students in Education.

3 hours a week; either semester; credit, 3 units.

**Psychology 2 (Psych 2) EXPERIMENTAL PSYCHOLOGY.**—A laboratory and lecture course designed to acquaint the students with the experimental methods of psychology.

Prerequisite: Psychology 1.

6 hours; first semester; credit 3 units.

**Psychology 3 (Psych 3) (Old number Psychology 8); GENETIC PSYCHOLOGY.**—The evolution of mind in the race as indicated by the behavior of organisms, from the simplest to the highest and most complex, as it develops in the individual from infancy to adulthood. Readings, lectures, reports, observations, original papers.

Prerequisite: Psychology 1. Formerly constituting the first half of Education 6. Required of all students in the second year of the College of Education.

3 hours a week; second semester; credit 3 units.

<sup>1</sup> On leave.

Psychology 101 (Psych 101); *EXPERIMENTAL PSYCHOLOGY*.—Work and Fatigue. A laboratory course in which a problem in work and fatigue is studied.

Prerequisite: Psychology 2.

6 hours a week; second semester; credit 3 units.

Psychology 102 (Psych 102); *EXPERIMENTAL PSYCHOLOGY*.—Learning. A laboratory course in the psychology of learning.

Prerequisite: Psychology 2.

6 hours a week; second semester, alternating with Psychology 2; credit 3 units.

Psychology 103 (Psych 103); *APPLIED PSYCHOLOGY*.—Primarily a graduate course but open to senior college students. Lectures, recitations, reports, discussions, and practical applications.

Prerequisite: Psychology 1.

3 hours a week; first semester, credit 3 units.

Psychology 104 (Psych 104) (Old number Psychology 9); *BUSINESS PSYCHOLOGY*.—A course in which psychology is taught with special reference to its application to business. Designed primarily to furnish the science for application in advertising, job specifications and job analysis, personnel management, character analysis, etc.

Prerequisite: Psychology 1.

3 hours a week; second semester, credit 3 units.

Psychology 105 (Psych 105); *PRINCIPLES OF MENTAL TESTS*.—A course open to senior college students. Critical study of standardized tests; construction and standardization of tests; their selection and application.

Prerequisite: Psychology 1.

3 hours a week; either semester, credit 3 units.

Psychology 106 (Psych 106); *SOCIAL PSYCHOLOGY*.—Study of aspects of mental activity peculiar to social interaction such as imitation, suggestion, language, etc.

Prerequisite: Psychology 1.

3 hours a week; first semester, credit 3 units.

Psychology 107 (Psych 107); *PERSONNEL RESEARCH AND VOCATIONAL GUIDANCE*.—Study of personnel projects; present tendency in education and employment; vocational guidance; personnel function in education, business and industry; school and employment records; occupational information, etc.

Prerequisite: 6 units in Psychology.

3 hours a week; second semester, credit 3 units.

Psychology 108 (Psych 108).—The same as Education 6.

#### GRADUATE COURSES

Psychology 201 (Psych 201) (Old number Psychology 6); *THE PSYCHOLOGY OF CHILDHOOD*.—The study of the development of the mind

of the child during the preadolescent period. Lectures, recitations, references, observations, original papers and discussions.

Prerequisites: Psychology 1 and Psychology 3.

3 hours a week; first semester, credit 3 units.

Psychology 202 (Psych 202) (Old number Psychology 7); *THE PSYCHOLOGY OF ADOLESCENCE*.—The study of the mind, interests, emotions and in general the characteristics of adolescents. Lectures, recitations, references, reports, and original papers.

Prerequisites: Psychology 1 and 3.

3 hours a week; second semester, credit 3 units.

Psychology 203 (Psych 203) (Old number Psychology 104);—*PHYSIOLOGICAL PSYCHOLOGY*.—A course which takes up the study of the physiological basis of mental activities.

Prerequisites: Psychology 1 and a course in neurology.

3 hours a week; second semester, credit 3 units.

Psychology 204 (Psych 204); *PSYCHOLOGY OF LEARNING*.—A course which deals with principles and types of learning, factors affecting learning, transfer of training, etc.

Prerequisite: Psychology 1 and Psychology 102.

3 hours a week; second semester, credit 3 units.

Psychology 205 (Psych 205); *INSTINCTS AND EMOTIONS*.—Nature and origin of instincts and emotions; critical analysis of theories about instincts and emotions, their functions, etc.

Prerequisite: 6 units in Psychology.

3 hours a week; second semester, credit 3 units.

Psychology 206 (Psych 206); *STATISTICAL METHODS APPLIED TO PSYCHOLOGICAL AND EDUCATIONAL PROBLEMS*.—Elements of statistics are taught preparing the student in treating his research or survey data.

Prerequisites: Psychology 1, Education 6 and 3 units in Mathematics.

3 hours a week; first semester, credit 3 units.

Psychology 207 (Psych 207); *PERCEPTION OF SPACE*.—This course deals with perception of motion, localization of visual and auditory objects, visual perception of form, local signs, visual perception of size, etc.

Prerequisite: 6 units in Psychology.

3 hours a week; second semester, credit 3 units.

Psychology 208 (Psych 208); *COMPARATIVE PSYCHOLOGY*.—A graduate course designed to study the mental activities of lower animals compared to those of man.

Prerequisites: Psychology 1 and Psychology 105.

3 hours a week; first semester, credit 3 units.

Psychology 209 (Psych 209); *SYSTEMATIC PSYCHOLOGY*.—Critical study of Structural, Functional, and Behaviouristic Psychology, their methods of approach, subject matter, etc.

Prerequisite: 6 units in Psychology.

3 hours a week; second semester, credit 3 units.

Psychology 210 (Psych 210) (Research).—Open to advanced students in Psychology.

Hours and credits to be arranged.

## **THE FOUR-YEAR CURRICULUM IN HOME ECONOMICS**

*Leads to the degree of Bachelor of Science in Home Economics (B.S.H.E.)  
Open to Graduates of Approved Four-Year Secondary Schools*

#### **A. REQUIRED COURSES**

## **HOME ECONOMICS**

Associate Professor RAMONA S. TIRONA, and Miss ABAYA

Home Economics 1 (Hm Ec 1); ***SELECTION AND PREPARATION OF FOOD.***—The nature and uses of foods, their chemical composition, the changes effected by cold, heat, or fermentation; principles of selection, processes of manufacture, proper combinations. First semester.

**Prerequisite:** General Chemistry.

Credit 4 units.

**Home Economics 2 (Hm Ec 2); COOKING AND ECONOMIC USES OF FOOD.**—Study of different methods of preserving food; season for different fruits and vegetables; the economics of the food question. Second semester.

**Prerequisites:** Home Economics 1 and Bacteriology.

Credit 4 units.

**Home Economics 3 (Hm Ec 3); FOOD AND NUTRITION.**—Physiological, chemical, and bacteriological aspects of food and nutrition. Open to seniors only.

**Prerequisites:** General, qualitative, quantitative, and physiological Chemistry, Bacteriology, Physiology, and Home Economics 8.

**Elective.** credit 3 units.

Home Economics 4 (Hm Ec 4); *TECHNOLOGY OF COOKERY*.—Practice cooking; making recipes. Actual planning and preparation of menus for luncheons, dinners, etc.

Prerequisites: Home Economics 1, 2.

Credit 3 units.

Home Economics 5-6 (Hm Ec 5-6); *EXPERIMENTAL COOKERY OF PHILIPPINE FOODSTUFFS*.—Relation of recipes, effect of ingredients, of manipulation, of temperature. Experiments on the preservation of Philippine fruits, vegetables and other foodstuffs. Throughout the year.

Prerequisites: Home Economics 1, 2.

Credit 6 units.

Home Economics 8 (Hm Ec 8); *DIETETICS*.—The essentials of an adequate diet; the relation of food to health; influence of age, sex, and occupation on diet; factors involved in the construction of dietaries.

Prerequisites: Home Economics 1, 2 and Physiology.

Credit 3 units.

Home Economics 15 (Hm Ec 15); *PRINCIPLES OF HOUSEHOLD ADMINISTRATION*.—A general survey of the background of activities in the household and the meaning of homemaking in the present day; the organization and control of family life thru the economic and social relations of the household; and the management of the family income and its expenditures.

Prerequisites: Economics 1 and Sociology 1.

First semester, credit 3 units.

Home Economics 16 (Hm Ec 16); *PRACTICE HOUSE*.—Care of the house including laundry; organization of work with emphasis on cost and time employed; planning, preparation, and serving of meals. Conferences and laboratory work in practice home.

Prerequisites: Home Economics 18, 17.

Credit 3 units.

Home Economics 17 (Hm Ec 17); *HOUSEHOLD MANAGEMENT*.—Treats of the organization of the household with reference to efficiency; the equipment and care of the home; and home business problems, including marketing.

Prerequisites: Home Economics 15.

Credit 3 units.

Home Economics 18 (Hm Ec 18); *HOME DECORATION, FURNISHING, AND SANITATION*.—Artistic, economic and sanitary aspects of home decoration and furnishing.

Second semester; credit, 3 units.

Home Economics 20 (Hm Ec 20); *HOUSE PLANNING AND CONSTRUCTION*.—A fundamental study of essentials in house construction; practical alterations and remodelling for better management; and interpretation of floor plans. This course is to be given by special lecturers

Credit 2 units.

Home Economics 26 (Hm Ec 26); *EFFICIENCY IN SEWING*.—Use of the sewing machine and its attachments; construction of the most im-

portant garments in a home with special reference to efficiency, economy, and art. Designing and making of patterns.

Credit 3 units.

**Home Economics 31 (Hm Ec 31); GENERAL HYGIENE AND SANITATION.**—Briefly covers all the subjects usually taught in home and community hygiene and sanitation, giving special attention to the adulteration and preservation of foods, disposal of household waste, control of household pests, disinfection, and methods of combatting dangerous communicable diseases.

Credit 3 units.

**Home Economics 32 (Hm Ec 32); HYGIENE OF INFANTS AND CHILDREN.**—The care and feeding of infants in sickness and in health. Lectures, demonstrations, and discussions. Observation and practice work in the puericulture centers located in the city.

Prerequisites: Home Economics 8 and 31.

Credit 3 units.

**Home Economics 33 (Hm Ec 33); HOME NURSING AND EMERGENCIES.**—Lectures, recitations, and demonstration work on first-aid to the injured, and the home-care and feeding of the sick.

Prerequisites: Physiology, Home Economics 31, and Home Economics 8.

Credit 3 units.

**TEXTILES.**—The textile industry, with special attention to that in the Philippines; fibers and materials; tests for adulteration of fabrics; and effects of laundering processes on different fabrics.

Prerequisite or parallel: General Chemistry.

## PHYSICAL EDUCATION

These courses are offered by the University Department of Physical Education and are required of college of Education students majoring in physical education.

**PHYSICAL EDUCATION 51** (History of Physical Education).—The course aims to familiarize the students with the literature bearing on the history of physical education including the nature, influence, and progress of physical training during its various stages of development. Lectures and assigned collateral readings.

3 hours a week; first semester, credit 3 units.

**PHYSICAL EDUCATION 52** (Play and Playgrounds).—The course includes the history of the playground movements, the philosophy of play, and the organization, promotion, operation and administration of school and municipal playgrounds. Lectures.

3 hours a week; second semester, credit 3 units.

**PHYSICAL EDUCATION 53** (Physiology).—The course is elected for students who expect to become teachers of physical education. It forms the foundation work of the course in physiology of exercise and personal hygiene. Lectures and assigned collateral readings.

3 hours a week; first semester, credit 3 units.

**PHYSICAL EDUCATION 54** (Anatomy).—A study of the gross anatomy of the human body. This is necessary in order to have a thorough understanding of the mechanical problems in gymnastics and athletics. Lectures and demonstration.

3 hours a week; second semester, credit 3 units.

**PHYSICAL EDUCATION 55** (Gymnasium Work 1).—Practical work in graduated exercise, progressive and corrective gymnastics including heavy apparatus and elementary normal dancing.

3 hours a week; first semester, credit 1 unit.

**PHYSICAL EDUCATION 56** (Hygiene).—This course includes a thorough review of school, civic, and personal hygiene. It aims to familiarize the students with health problems and proper rules of living. Lectures and collateral readings.

3 hours a week; first semester, credit 3 units.

**PHYSICAL EDUCATION 57** (Field Practice).—A practical training in major sports as well as in games of lower organization. The students must acquire a certain degree of proficiency in these games. They must also possess a working knowledge of the rules governing these activities.

3 hours a week; second semester, credit 1 unit.

**PHYSICAL EDUCATION 58** (Physiology of Exercise).—This is practically a continuation of the course in physiology. It is intended to familiarize the students with the various forms of physical exercise and their effects on the various important organs of the body. Lectures.

3 hours a week; second semester, credit 3 units.

**PHYSICAL EDUCATION 59** (Anthropometry).—A study of the statistical and diagnostic value of physical measurements, construction of anthropometrical tables, and the comparative study of growth and development. Lectures and demonstration.

3 hours a week; first semester, credit 3 units.

**PHYSICAL EDUCATION 60** (Administration in Physical Education).—The course covers a detailed study of the administrative problems of physical education including intramural, interschool, or intercollege athletics, schedule and contract making, financial administration, purchase and care of equipment, scholastic and athletic eligibility, care of gymnasium, swimming pool, athletic fields, and tennis, courts; insignia and awards, and management of home games and trips of athletic teams, etc. Lectures.

3 hours a week; second semester, credit 3 units.

## UNIVERSITY HIGH SCHOOL

### AIMS

In July, 1916, the University High School was established in connection with the College of Education in order to provide classes for practice teaching and for the study of problems in education. It also prepares students for the University.

### ADMISSION REQUIREMENTS

Applicants for admission should be graduates of an accredited intermediate school. They should present their identification cards for transfer upon matriculation.

**DEPOSIT AND FEES**

1. The tuition fee in the school is ₱40 per semester.
2. Any student taking laboratory work will be required to deposit ₱10 with the Secretary of the University upon matriculation, to cover any loss of apparatus, books, supplies, etc., or any damage to University property which may be charged in the laboratory classes.
3. A fee of ₱5 will be charged in the laboratory classes.
4. There is a fee of ₱5 for delayed registration.
5. An athletic and library fee of ₱2 will be charged each student.

**COURSE OF STUDY**

The following course of study prescribed for public secondary schools is followed, except when the special purposes of the school necessitate the modification of the course:

First Year	Second Year	Third Year	Fourth Year
Literature (4). Current Events (1).	Literature and Composition (5).	Literature and Composition (5).	Literature and Composition (5).
Composition (5).	Physical Geography (5).	Biology (5D).	Economic Conditions in the Philippines (5).
United States History (3). Government (2).	General History (4). Current Events (1).	General History (4). Current Events (1).	Philippine History and Government (4). Current Events (1).
Algebra (5).	Geometry (5).	Advanced Algebra (5).      Review Arithmetic (5).	Physics (5D).
Physical Education. Military Science (2). Group Games (3).			

*Optional Subjects*

Music.	Music.	Spanish (5). Music.	Spanish (5). Music.
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**HOUSEHOLD SCIENCE AND ARTS COURSE***Required Subjects*

First Year	Second Year	Third Year	Fourth Year
Literature (4). Current Events (1).	Literature and Composition (5).	Literature and Composition (5).	Literature and Composition (5).
Composition (5).	Physical Geography (5)	Biology (5)	Economic Conditions in the Philippines (5).
United States History (3). U. S. Government (2).	General History (4). Current Events (1).	General History (4). Current Events (1).	Philippine History and Government (4). Current Events (1).
Household Science and Arts (5D).	Household Science and Arts (5D).	Household Science and Arts (5D).	Household Science and Arts (5D).
Physical Education (3).	Physical Education (3).	Physical Education (3).	Physical Education (3).

# **The College of Engineering**

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## **ADMINISTRATIVE OFFICERS**

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College:* Professor HERMAN WHITE REYNOLDS (on leave)

*Acting Dean of the College:* Professor EDWARD R. HYDE

*Acting Secretary of the College:* Professor JUSTO ARRASTIA

## **CLERKS**

*Clerk:* Mr. MAXIMO PARGAS

*Property Clerk:* Mr. GREGORIO PINEDA

*Clerk:* Mr. TORIBIO VILLANUEVA

## **CHAIRMEN OF STANDING COMMITTEES**

*Catalogue and Other Publications:* Professor RAMON MARIANO

*Curriculum:* TEOFILO REYES

*Delinquency:* Professor RAMON MARIANO

*Schedule:* Professor JUSTO ARRASTIA

*Standardization of Drafting Work:* Professor LEON S. EATON

*Standardization of Laboratory Work:* Professor JUAN L. TIONGSON

## **BUSINESS DIRECTORY**

**OFFICE OF THE DEAN:** The office of the Dean is on the second floor of the wooden building at the northwest corner of the campus (corner Isaac Peral and Florida). Entrance to the building is at No. 522, Isaac Peral.

**TELEPHONE CONNECTION:** Tel. 2566, Local 22.

**CORRESPONDENCE:** Address all communications to the Dean, College of Engineering, University of the Philippines, Manila, P. I.

## FACULTY OF INSTRUCTION

**HERMAN WHITE REYNOLDS, B.S.M.E.<sup>a</sup>,**

Dean of the College, Professor and Head of the Department of Mechanical Engineering.

**EDWARD RUDDOCK HYDE, B.S.C.E.,**

Acting Dean of the College, Professor and Head of the Department of Civil Engineering.

**LEON SCHULTZ EATON, M.E.,**

Professor and Acting Head of the Department of Mechanical Engineering.

**HERMENEGILDO B. REYES, A.B., M.E., M.M.E.<sup>b</sup>,**

Professor and Head of the Department of Electrical Engineering.

**TEOFILO REYES, A.B., C.E., LL.B.,**

Professor in Civil Engineering.

**MARIANO F. MANGUERRA, C.E.,**

Associate Professor in Civil Engineering.

**RAMON MARIANO, M.E.,**

Associate Professor in Mechanical Engineering. In charge of Mechanical Laboratory.

**ESTANISLAO P. ANGELES, B.S.M.E., M.S.M.E.,**

Assistant Professor in Mechanical Engineering.

**JUSTO ARRASTIA, A.B., B.S.C.E., C.E.,**

Acting Secretary, Assistant Professor in Civil Engineering.

**PRUDENCIO F. ESQUIVEL, B.S.C.E., M.S.I.,**

Assistant Professor in Civil Engineering. In charge of the Hydraulic Laboratory.

**FELIPE REYES ROMAN, B.S.M.E.,**

Assistant Professor in Electrical Engineering.

**JUAN L. TIONGSON, B.S.M.E., M.S.M.E.,**

Assistant Professor in Electrical Engineering.

**MENELEO CARLOS, A.B., M.E.,**

Instructor in Electrical Engineering.

**CORNELIO GERMAN, A.B., B.S.E.E.,**

Instructor in Electrical Engineering.

**ALEJANDRO MELCHOR, B.S.C.E.,**

Instructor in Civil Engineering.

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<sup>a</sup> On leave.

<sup>b</sup> Half time basis.

## **THE COLLEGE OF ENGINEERING**

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### **HISTORY AND GENERAL INFORMATION**

The College of Engineering was opened and instruction in the first year of the Civil Engineering course was begun on June 13, 1910. Graduates of four-year high-school courses were admitted at that time to the first year of the Civil Engineering course, which course was to consist of five years of study.

On January 31, 1911, the Board of Regents decided to require two years of College work as a preparation for the Engineering course, and changed the latter to consist of four years of professional studies.

While a six-year course will fit a student for the profession much better than one of five years, the demand for a shorter course has been so pronounced that on January 9, 1914, the Board of Regents adopted a course of five years, leading to the degree of B. S. in Civil Engineering on the completion of four year's work, and of M. S. in Civil Engineering upon completion of five years' work. At the same time the six-year course was rearranged so that the last three years of the five-year course and the six-year courses leading to the degree of M. S. in Civil Engineering, would be identical. The six-year course has been abolished since, and no such combination course is offered.

On July 12, 1915, the Board of Regents authorized the adoption of courses in Mechanical and Electrical Engineering. The granting of degrees in each of these courses follows the regulations already in effect governing the granting of degrees in the courses in Civil Engineering. The four-year courses lead to the degree of B. S., and the five-year courses to the degree of M. S. in Mechanical or Electrical Engineering.

On March 9, 1922, the Board of Regents authorized, along with the completely revised courses in Civil Engineering, Mechanical Engineering, and Electrical Engineering, an optional course in Industrial Engineering, leading to the degree of B. S. in Mechanical Engineering. This new course will be optional for Mechanical Engineering students who wish to enter the commercial side of engineering, or who are interested in industrial organization and administration. In the courses pertaining to this optional course, time will be devoted to accounting, business law, financing of industries, etc., the study of the modern methods of time-keeping and cost-finding, motion and time studies, planning of factories, etc.

The prescribed work for all courses in Engineering is the same for the first year. A student, therefore, need not specify the course which he intends to follow until the beginning of the second year's work.

#### **MILITARY SCIENCE**

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation.

and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

### LABORATORY FACILITIES

The laboratory buildings contain: (a) In the Mechanical Department all the necessary equipment, instruments, and auxiliary apparatus to run commercial engineering tests on steam boilers, steam engines, and different kinds of internal combustion engines; (b) In the Electrical Department, the necessary equipment to run complete tests on direct-current motors and generators of different types, alternating current generators, induction motors of both types, synchronous motors, rotary converters, transformers, etc.; and (c) In the Hydraulic Laboratory, the necessary equipment for testing the flow of water in pipes, through orifices, over weirs, also for the testing of pumps and hydraulic motors and for rating current meters.

For cement testing students are admitted to the cement-testing laboratories of the Bureau of Science in which hundreds of thousand of barrels are tested annually and where they have the advantage of instruction from experts in this line, as well as of observation of methods used and results obtained in a laboratory operating on a large commercial scale. The importance of this training in the Philippine, where, because of climatic and seismic conditions, cement plays so large a part among the materials of construction, cannot be overestimated. For the testing of other materials of construction the testing machine belonging to the Bureau of Science is used, also a complete equipment for the testing of road materials.

### INDUSTRIAL ENGINEERING

Shop training is now given in the College of Engineering where a full line of equipment of the best and most complete description has been installed in a modern concrete building. In these shops, the students are trained in the use of the modern shop machines and tools for the machine shop and woodworking shop, as well as in different kinds of work in forging. The foundry is not in operation yet, but students in Mechanical and Electrical Engineering are given instruction and exercises in pattern making and sand moulding.

In addition to giving actual shop instruction, the shops are used as the training department for the students in Mechanical-Industrial Engineering in their study of Scientific Production and the Scientific Management of Shops and Factories.

### SURVEYING

The students are first taught the basic elements of plane surveying including the use and care of instruments. This is followed by topographic stadia, and plane table surveying and by stream gauging. The various special problems of surveying as applied to government land surveys, railroad location, highway location, and irrigation are next studied. Finally, a brief course is given in the elements of higher surveying including triangulation, hydrography and sufficient astronomy to determine azimuth, latitude and longitude. The main emphasis of the work in surveying is placed on the practical problems most often met in the important engineering activities of the Philippines.

**SUMMER SURVEYING**

The Summer Surveying is given for 8 weeks in the long vacation period and covers field work in practical astronomy, hydrographic surveying, stream gauging, and topographic surveying in hilly country not possible in Manila. It is usually given in Los Baños. A summer's work in surveying with the Bureau of Public Works or any other high-class engineering organization is accepted in place of this course if approval for this substitution is obtained in advance from the Dean.

**ADMISSION**

Applications for admission are received in the College of Engineering from three classes of candidates: (a) Persons who desire to pursue a regular course of study leading to a degree; (b) students who, having already attended some institution of collegiate rank, desire advanced standing in a regular course; (c) special students, not candidates for a degree.

**ENTRANCE REQUIREMENTS**

The subjects required for entrance to the College of Engineering are the following:

	Units
English .....	5
History .....	2
Mathematics (including Solid Geometry).....	3
Botany or General Biology.....	1
Physics .....	1
 Total .....	 12

In addition to the above, 3 units must be presented to make a total of 15 units. These additional units may be in history, government, zoölogy, chemistry, trigonometry, Latin, French, German, or Spanish. In all other respects the requirements for admission and the regulations regarding entrance examinations are the same as for the College of Liberal Arts for which see pages 94-97.

Communications regarding admission should be addressed to the Dean, College of Engineering, University of the Philippines, and certificates and notebooks forwarded to the same address. Laboratory notebooks should be forwarded not later than June 1st to give adequate time for careful examination.

**ENTRANCE EXAMINATIONS****INTELLIGENCE TEST**

**ENGLISH.**—The test in English will consist of composition on assigned subjects to test the candidate's training in written expression. The examiner will consider particularly the following essentials: spelling, punctuation, and use of capital letters; corrections of faulty syntax; idiomatic use of words, structure of sentences and paragraphs. The examinations will be based on the course of study as outlined by accredited schools in the Philippines.

The following regulations have been recently adopted regarding accrediting entrance Physics and entrance Mathematics:

**PHYSICS.**—Students required to take, or those who intend to take Physics. Such students will be admitted to Physics 2, 2E, 211-221, 2M

(all courses in General Physics) by passing a comprehensive written examination in High School Physics covering a year's work including both classroom and laboratory work. The examination is intended to reveal the student's acquaintance with the more important phenomena of Physics and with the principles involved in their explanation. Students failing in this examination will be required to take Physics 1 (Elementary Physics).

Students will be required to take this examination when they first enter the University. If not taken then, and the student cannot show cause satisfactory to the Department of Physics, he will be required to take Physics 1.

**MATHEMATICS.**—There has been instituted an entrance examination in High School Mathematics for all students entering the University of the Philippines. Students that fail in this test are required, without credit, to take a course in review of High School Mathematics.

#### FEES

Every regular student in the College of Engineering is charged the following:

<i>Tuition</i> —Per semester.....	₱25.00
<i>Athletic fee</i> —Per semester.....	1.50
<i>Library fee</i> —Per year.....	2.50
For the support of <i>The Philippine Collegian</i> —Per semester .....	1.00
For the expenses of the <i>University Student Council</i> — Per semester.....	.50

In addition to the above fees, students are required to pay laboratory fees for the laboratory courses which are taken during the corresponding semester. The amount of laboratory fees is about ₱15 per semester.

A deposit of ₱15 is also required of every new student in the University to cover breakage and loss of general laboratory equipment.

### SEMESTRAL COURSES OF INSTRUCTION

#### DEPARTMENT OF CHEMISTRY

*Chemistry 25 (Chem 25); GENERAL AND INORGANIC CHEMISTRY.*—A course designed primarily for Engineering students, covers the essentials of elementary general inorganic college chemistry. Special attention is given to the fundamental principles of the subject and the chemistry of the metals. The latter part of the course is devoted exclusively to a short course in qualitative analysis.

9 hours a week (6 Lab, 3 Class); throughout the year; credit 10 units.

#### DEPARTMENT OF ENGLISH

*English 1 (Engl 1); COMPOSITION.*—A practical course in writing and speaking. One day a week is devoted to an inductive study of principles and of idioms and to the correction of typical errors; one day to oral or written exposition of impromptu topics; one day to written themes. In addition, reports on six home-reading books are required.

Prescribed for all regular first-year students in the colleges of Liberal Arts, Education, Engineering, and Pharmacy; and prerequisite to all other courses in English.

3 hours a week (Class); throughout the year; credit 6 units.

English 7 (Engl 7); *ORAL AND WRITTEN EXPOSITION*.—A study of the principles of exposition, with special reference to the needs of engineering students. Analysis of specimens of technical writing and popular exposition, selected from current periodicals. Practice in writing and delivering reports.

Prescribed for all regular sophomore students in the College of Engineering.

2 hours a week (Class); either semester; credit 2 units.

#### DEPARTMENT OF GEOLOGY

Geology 103 *GENERAL GEOLOGY FOR ENGINEERING STUDENTS*.—A general course covering general and economic geology and the elements of mineralogy; consisting of lectures, laboratory periods, recitations, and occasional field trips. Must be preceded by Chemistry 25.

7 hours a week (Class, Laboratory); either semester; credit 3 units.

#### DEPARTMENT OF MATHEMATICS

Mathematics 11 (Math 11); *COLLEGE ALGEBRA, TRIGONOMETRY, AND ANALYTIC GEOMETRY*.—A continuous course running throughout the year and combining work in college algebra, plane and spherical trigonometry, and analytic geometry in a manner adapted to the special needs of engineering students. For further information, see Mathematics under the College of Liberal Arts.

5 hours a week (Class); first semester; credit 5 units.

Mathematics 12 (Math 12).—Continuation of Math 11.

5 hours a week (Class); second semester; credit 5 units.

Mathematics 21 (Math 21); *CALCULUS*.—A continuous course throughout the year covering differential and integral calculus in a manner adapted to the special needs of engineering students. For further particulars, see Mathematics under the College of Liberal Arts.

5 hours a week (Class); first semester; credit 5 units.

Mathematics 22 (Math 22).—Continuation of Math 21.

5 hours a week (Class); second semester; credit 5 units.

#### DEPARTMENT OF PHYSICS

Physics 2E (Phys 2E) Formerly Physics 211 and 221; *GENERAL ENGINEERING PHYSICS*.—A general course in college physics for engineering students; combining lectures, demonstration, recitations, and individual laboratory work; with special emphasis on problem work and upon the applications of physics to engineering. Open only to students who have had the preparation described under Physics 2.

9 hours a week (3 Class, 6 Lab); throughout the year; credit 10 units.

#### INTRODUCTION TO SOCIAL SCIENCE

This course is given by the College of Liberal Arts with the coöperation of the College of Education. The coöperating departments are Political Science, Philosophy and Psychology, Anthropology and Sociology, History, Economics, Education, and Library Science.

**INTRODUCTION TO SOCIAL SCIENCE** (Social Science I).—An introductory course required of all students of the Colleges of Education and Liberal Arts, conducted jointly by the Departments of Political Science, History, Anthropology, Economics, Education, Library Science, and Philosophy. Work in the first semester takes up man's relation with nature, his traits, peculiarities, and ideals, some of the fundamental educational problems, especially of the Philippines, the historical background of the present civilization, and a brief history of the great nations. The second semester introduces the students to political science, and discusses the fundamental problems of democracy and popular control of government, problems of imperialism and backward peoples, with special emphasis on the relation between the United States and the Philippines. Then follows a brief discussion of fundamental economic principles and the chief economic problems of the Philippines.

3 hours a week (Class); throughout the year; credit 6 units.

#### DEPARTMENT OF SPANISH

Spanish 111 (Span 111); **ELEMENTARY SPANISH**.—A study of Spanish grammar and composition (one hour a week), supplemented by reading (one hour a week) and conversation (one hour a week). This course is intended for beginners and offered specially to engineering students.

3 hours a week (Class); first semester; credit 3 units.

Spanish 121 (Span 121); **ELEMENTARY SPANISH**.—A continuation of the course in Spanish 111.

3 hours a week (Class); second semester; credit 3 units.

#### DEPARTMENT OF ZOOLOGY

Zoölogy 3 (Zoöl 3); **BIOLOGICAL PROBLEMS IN ENGINEERING**.—A course treating of the biological problems involved in construction, water supply, sewerage, and sanitation.

1 hour a week (Class); either semester; credit 1 unit.

### COLLEGE OF ENGINEERING

#### ENGINEERING LECTURES

**ENGINEERING LECTURES**.—This course is designed especially for Freshmen and its purpose is to show them what engineering is and the scope of its field. The lectures are non-technical.

1 hour a week (Lecture); first semester; credit 0 unit.

#### ENGINEERING DRAWING

Drawing 111. **MECHANICAL DRAWING**.—Upper and lower case lettering; selection, care, and use of instruments; applied geometry and orthographic projection.

6 hours a week (Laboratory); first semester; credit 2 units.

Drawing 121. **MECHANICAL DRAWING**.—Continuation of Drawing 111. Developed surfaces and intersections; isometric and oblique representation; machine fastenings; sketching, drawing, and tracing of machine parts; structural drawing.

6 hours a week (Laboratory); second semester; credit 2 units.

### SHOPS

Shop 211. *WOOD SHOP*.—All men assigned to this shop complete the first few exercises as outlined in "Pattern Making," by McCaslin, in order to become acquainted with the common tools. The Civil students follow this with several types of joints, miniature structures, and exercises in wood-turning. Other students take up pattern-making as outlined by McCaslin, and as the patterns are completed, mold them in sand. During each period quizzes are given on assigned reading bearing on the work of that period.

6 hours a week (Laboratory); either semester; credit 2 units.

Shop 221. *FORGE SHOP*.—The work in this shop comprises exercises on squaring and rounding stock; bending to circular and irregular forms; drawing out and upsetting; punching, twisting, and welding. Cold chisels and lathe tools are shaped, hardened, and tempered. Rough physical tests to determine the effect upon steels of various heat treatments are also carried out in connection with the study of Metallurgy in the classroom. Regular quizzes are given on assigned reading.

3 hours a week (Laboratory); second semester; credit 1 unit.

Shop 222. *MACHINE SHOP*.—The bench work consists of chipping, filing, sawing, and scraping of a piece of cast iron to the required dimensions; also of the assembly of machine parts being built in the shop. The lathe work covers the common machining operations; namely, plain and curved turning and facing to templet; taper turning and boring; external and internal threading; and eccentric turning. The building of tool and machine equipment for the shops and laboratories provides work for the other machine tools in the shop. The students are quizzed on assigned reading each time they report to the shop.

9 hours a week (Laboratory); second semester; credit 3 units.

### MECHANICS

Mechanics 311. *TECHNICAL MECHANICS*.—Composition and resolution of forces; forces in equilibrium; simple structures, friction, center of gravity, suspended cables, wires and chains, rectilinear motion, curvilinear motion, translation and rotation, work, energy, power, momentum, and impulse, moment of inertia of plane areas.

Prerequisites: Mathematics 22 and Physics 2E.

5 hours a week (Class); first semester; credit 5 units.

Mechanics 321. *STRENGTH OF MATERIALS*.—Elastic properties of materials, relation between stress and deformation, stresses in beams, flexure of beams, columns and struts, torsion, spheres, and cylinders under uniform pressure, flat plates, curve pieces, hooks, links, and springs.

Prerequisite: Mechanics 311.

5 hours a week (Class); second semester; credit 5 units.

### DEPARTMENT OF CIVIL ENGINEERING

C. E. 211. *PLANE SURVEYING*.—This course consists of lectures, recitations, and field work, covering the use and care of instruments, taking

notes and making maps of surveys, profiles and cross-sections. Instruction is also given in methods of using logarithmic and other computation tables.

Prerequisites: Mathematics 0, 11, and 12.

8 hours a week (2 Class, 6 Field); first semester; credit 4 units.

C. E. 221. *TOPOGRAPHIC SURVEYING*.—In this course the theory of stadia measurements, trigonometric and barometric leveling, hand and pocket instruments are studied. Field work consist of making topographic surveys by plane table and stadia methods. Office work includes conventional signs, and finished maps from each of the above surveys.

Prerequisite: C. E. 211.

8 hours a week (2 Class, 6 Field); second semester; credit 4 units.

C. E. 223. *ELEMENTARY SURVEYING*.—This course consists of recitations and field work to familiarize the students in transit and leveling work. Use of tables, computation, and plotting are also taught. Special Course for Electrical and Mechanical Students.

Prerequisites: Mathematics 0, 11, and 12.

4 hours a week (1 Class, 3 Field); second semester; credit 2 units.

C. E. 311. *ADVANCED SURVEYING*.—Reconnaissance and preliminary surveying for highways and railroads. Curves; simple, compound, reverse and transition curves. Frogs\*and switches.

Prerequisite: C. E. 221.

4 hours a week (1 Class, 3 Field); first semester; credit 2 units.

C. E. 312. *TESTING LABORATORY*.—Study and operation of testing machines. Tests of steel, iron, wood, hemp rope, etc. Must be accompanied or preceded by C. E. 314.

6 hours a week (Laboratory); first semester; credit 2 units.

C. E. 313. *ROADS AND PAVEMENTS*.—Location, specifications, and construction of country highways and city pavements.

2 hours a week (Class); first semester; credit 2 units.

C. E. 314. *MATERIALS OF CONSTRUCTION*.—Study of the engineering properties of timber, cast and wrought iron, steel, copper, tin, zinc, and their useful alloys; of cement, stone, and sand.

2 hours a week (Class); first semester; credit 2 units.

C. E. 321. *ADVANCED SURVEYING*.—Earthwork, setting slope stakes; computation of earth work; mass diagram. Measurement of flow in rivers; soundings and setting ranges for dredging. Elements of geodesy. Elements of Practical Astronomy; latitude, longitude, and true meridian.

Prerequisite: C. E. 311.

4 hours a week (1 Class, 3 Field); second semester; credit 2 units.

C. E. 322. *MODERN FRAMED STRUCTURES*.—Elements of the analysis of framed structures, analysis of roof trusses, analysis of bridge trusses for uniform loads, analysis of bridge trusses for concentrated loads, lateral trusses, trestles, and towers.

Prerequisite: Mechanics 311.

4 hours a week (Class); second semester; credit 4 units.

C. E. 323. *TESTING OF CEMENT AND CONCRETE*.—This course is given by the scientist in charge of the Cement Testing Laboratory of the Bureau of Science in connection with their regular routine tests.

Must be accompanied or preceded by C. E. 314.

3 hours a week (Laboratory); second semester; credit 1 unit.

C. E. 331. *SUMMER SURVEYING*.—This course is given for 8 weeks in the long or summer vacation as described under general information.

8 weeks of field work; summer vacation; credit 8 units.

C. E. 411. *FINANCIAL ENGINEERING*.—A brief résumé of the principles of economics and their special application to the field of engineering. Also the study of sinking funds, depreciation, estimating, cost keeping, and the elements of accounting. Can only be taken by students who have completed or are taking at least 9 units of fourth year civil engineering subjects.

3 hours a week (Class); first semester; credit 3 units.

C. E. 412. *HYDRAULICS*.—Theoretical hydrostatics and hydrodynamics. Theory of hydraulic measurements by orifices, weirs, tubes, nozzles, floats and current meters, study of flow of water in pipes, conduits, canals, and rivers.

Must be preceded by Mechanics 321 and accompanied by M. E. 414.

4 hours a week (Class); first semester; credit 4 units.

C. E. 413. *STRUCTURAL DESIGN*.—Design of steel and wooden roof trusses, riveted highway bridge, and pin-connected railroad bridge.

Prerequisites: Mechanics 321 and C. E. 322.

15 hours a week (Laboratory); first semester; credit 5 units.

C. E. 414. *REINFORCED CONCRETE CONSTRUCTION*.—Fundamental principles of concrete and steel in combinations, rectangular beams, slabs, cross-beams and girders, columns, footings; bending and direct stress. Materials, forms, bending and placing of reinforcement. Mixing and placing of concrete, finishing surfaces, waterproofing. Estimating unit costs and quantities.

Prerequisite: Mechanics 321.

4 hours a week (Class); first semester, credit 4 units.

C. E. 415. *ENGINEERING REPORTS*.—Each week a committee of three students prepares a carefully written report on a subject of engineering interest on which there may be a legitimate difference of opinion. The section sitting as a committee of the whole presided over by one of their number listens to the reading of the committee's report, discusses it, and finally accepts or rejects it. The object of the course is to familiarize the students with parliamentary law and to train them to address an audience in a clear and convincing manner on engineering matters.

Must be preceded or accompanied by C. E. 411.

1 hour a week (Class); first semester, credit 1 unit.

C. E. 419. *ELEMENTS OF CONCRETE CONSTRUCTION*.—An optional course for students in the Mechanical and Electrical departments. The course covers briefly a study of cement, aggregates and reënforcing steel and the theory of their combination to foundation and concrete.

Special attention is given to engine foundation and other details of interest to Mechanical and Electrical Engineers.

Prerequisite: Mechanics 321.

1 hour a week (Class); first semester, credit 1 unit.

C. E. 421. *CONTRACTS AND SPECIFICATIONS*.—The elements of the law of contracts. Engineering and legal aspects of specifications.

Prerequisites: C. E. 411, M. E. 410, or their equivalents.

2 hours a week (Class); second semester, credit 2 units.

C. E. 422. *IRRIGATION ENGINEERING*.—Use and practice of irrigation water, duty of water, preparation of land. Planning and construction of system. Canals, tunnels, flumes, and pipes. Diversion works, spillways, drops, and chutes, distribution systems.

Prerequisite: C. E. 412.

5 hours a week (Class); second semester, credit 5 units.

C. E. 423. *APPLIED HYDRAULICS*.—Water supply; quantity of water and sources of supply; quality of water; construction of works for collection, purification and distribution of water. Sewerage; Amounts of house and storm sewage; flow in sewers; designing of sewers; disposal of sewage. Elements of water power.

Prerequisite: C. E. 412.

3 hours a week (Class); second semester, credit 3 units.

C. E. 424. *MASONRY AND FOUNDATIONS*.—Stone masonry. Bearing power of soils. Preparing the foundation. Determination of loads on foundations. Spread footing, pile foundation, subaqueous foundations.

Prerequisite: C. E. 414.

2 hours a week (Class); second semester, credit 2 units.

C. E. 425. *REINFORCED CONCRETE DESIGN*.—Design of Retaining walls; Simple and Continuous Slabs; Cross Beams and Girders; Columns and Footings; Deck and Girder Bridge; Piers and Abutments; Arch bridges; and Simple irrigation structures.

9 hours a week (Laboratory); second semester, credit 3 units.

C. E. 426. *ENGINEERING PROBLEMS*.—A general review in the second semester of the Fourth Year, in which all members of the Civil Engineering instructing staff take turns in meeting the class. The object is to refresh the students' minds on past courses by discussing in class problems covering the most important principles involved in the various courses. By this means knowledge will be coördinated and the student will be better prepared for Civil Service and Licencing Board Examinations.

Prerequisite: The student must be a candidate for a degree at the end of the semester.

3 hours a week (Laboratory); second semester, credit 1 unit.

#### DEPARTMENT OF MECHANICAL ENGINEERING

M. E. 211. *KINEMATICS AND GRAPHICS*.—Cams, linkages, velocity and acceleration diagrams, gears, belting, etc; friction in machine elements by graphics.

Must be preceded by Drawing 111 and 121.

8 hours a week (2 Class, 6 Lab); first semester, credit 4 units.

SEMESTRAL COURSES: MECHANICAL ENGINEERING 221

M. E. 221. *ELEMENTS OF STEAM ENGINEERING*.—Nomenclature of steam machinery. Elementary study of steam engines, boilers, steam turbines, auxiliary apparatus, and accessories.

Must be preceded by M. E. 211.

2 hours a week (Class); second semester, credit 2 units.

M. E. 222. (Formerly M. E. 313) *METALLURGY*.—This course deals with ferrous alloys, and covers the manufacture and physical properties of pig, malleable, and wrought irons; bessemer, open-hearth, tool, and alloy steels; heat treatment of steel.

Must be preceded by Chemistry 25.

2 hours a week (Class); second semester, credit 2 units.

M. E. 311. *EMPIRICAL DESIGN*.—Proportioning of machine parts such as bolts, nuts, and keys, couplings, bearings, axles, pulleys, and gear wheels. Making of assembly and detail drawings.

Must be preceded by Drawing 111 and 121, and M. E. 211.

6 hours a week (Laboratory); first semester, credit 2 units.

M. E. 312. *STEAM BOILERS*.—Fuels and combustion, modern boilers, accessories, and chimneys.

Must be preceded by Chemistry 25, Physics 2E, and M. E. 221.

3 hours a week (Class); first semester, credit 3 units.

M. E. 314. *MATERIALS OF ENGINEERING*.—Study of non-ferrous metals and non-metallic materials. Tensile tests of cast iron and steel. Selection of materials for specific cases as dictated by physical properties. corrosion, frictional coefficient, high temperatures, repeated stresses, and cost.

Must be concurrent with or preceded by M. E. 222.

1 hour a week (Class); first semester, credit 1 unit.

M. E. 315. *ELEMENTS OF STEAM ENGINEERING*.—Study of the general principles involved in the action and construction of the various forms of steam boiler, engines, auxiliary apparatus, and accessories. For Civil Engineering students only.

Must be preceded by Drawing 111 and 121.

2 hours a week (Class); first semester, credit 2 units.

M. E. 316. (Formerly M. E. 323). *MECHANICAL LABORATORY*.—Calibration of indicator springs, steam gauges, study of different engineering specialties; steam quality test with various forms of calorimeters; slide and Corliss valve setting; efficiency tests of steam engines; duty test of steam pump and injector; and test of steam boiler.

Must be preceded by M. E. 221.

6 hours a week (Laboratory); second semester, credit 2 units.

M. E. 321. *MACHINE DESIGN*.—Straining actions to which machines are subjected; resistance of machine structures to different kinds of straining actions. Complete design of a special machine.

Must be preceded by M. E. 311, and Mechanics 311.

7 hours a week (1 Class, 6 Lab); second semester, credit 3 units.

M. E. 322. *THERMODYNAMICS*.—Mechanical theory of heat; gases saturated and superheated vapors; various cycles of modern heat engines.

Must be preceded by Mathematics 22, Chemistry 25, Physics 2E, and M. E. 312.

3 hours a week (Class); second semester, credit 3 units.

M. E. 325. *ELEMENTARY THERMODYNAMICS*.—Elementary consideration of behaviour of gases. Theory of vaporization. Gas engines, steam engines, air compressor and refrigeration machinery. For Civil Engineering students only.

Must be preceded by Chemistry 25, Physics 2E, and M. E. 315.

3 hours a week (Class); second semester, credit 3 units.

M. E. 410. *FINANCIAL ENGINEERING*.—This course deals with the application of engineering to business and administrative problems but does not invade the field of Economics. The estimating of a complete manufacturing plant from the standpoint of investment is taken up.

2 hours (Class); first semester, credit 2 units.

M. E. 411. *MACHINE DESIGN*.—Theory of machine design, with applications; investigation of actual machines similar to the one to be designed; design of machinery subjected to heavy and variable stresses. Continuation of Course M. E. 321.

8 hours a week (2 Class, 6 Lab); first semester, credit 4 units.

M. E. 412. *STEAM ENGINES, TURBINES, REFRIGERATION*.—Application of laws of thermodynamics to modern steam engines and turbines; selection, use, and structural features. Study of various methods of abstracting heat; structural features of refrigerating machines; heat insulation; cold storage; manufacture of ice.

Must be preceded by M. E. 322.

4 hours a week (Class); first semester, credit 4 units.

M. E. 413. *HYDRAULICS*.—Theory of mechanics of fluids. Flow and measurement of water and study of water measuring devices.

Must be preceded by Mechanics 311.

3 hours a week (Class); first semester, credit 3 units.

M. E. 414. *HYDRAULIC LABORATORY*.—Laboratory practice in the use of water measuring devices such as current meter, weirs, pitot tube, nozzles, etc.

Must be accompanied by M. E. 413 or C. E. 412.

3 hours a week (Laboratory); first semester, credit 1 unit.

M. E. 415. *DYNAMICS OF ENGINES*.—Crank effort diagrams and flywheels; balancing of single and multiple cylinder engines, including the locomotive; valve diagrams, valves, and valve gearing; engine governors.

Must be preceded by M. E. 221, Mechanics 311, and M. E. 322.

5 hours a week (2 Class, 3 Lab); first semester, credit 3 units.

M. E. 416. *JIG AND FIXTURE DESIGN*.—Factors which determine their usefulness; principles of design; design of representative types.

6 hours a week (Laboratory); first semester, credit 2 units.

## SEMESTRAL COURSES: MECHANICAL ENGINEERING 223

M. E. 417. *ACCOUNTING*.—This course deals with the manner of collection and sources of cost data; thus the principles of bookkeeping, classification of accounts and journal entries are treated from the "factory accounting" point of view.

2 hours a week (Class); first semester, credit 2 units.

M. E. 418. *INDUSTRIAL ORGANIZATION*.—Industrial relations preceding the industrial revolution; the industrial revolution and its immediate effects; modern industrial tendencies; types of organization; administrative charts; the committee system.

2 hours a week (Class); first semester, credit 2 units.

M. E. 419. *ENGINEERING ECONOMICS*.—This is a practical course in economics, with special emphasis placed upon forms of industrial ownership and capitalization, labor problems, investment factors, and allied subjects.

2 hours a week (Class); first semester, credit 2 units.

M. E. 421. *MECHANICAL LABORATORY*.—Tests of steam engines; Ericson hot air engine; centrifugal blowing fan; ice machine; gasoline and oil engines.

Must be preceded by M. E. 322, 316, and 412.

6 hours a week (Laboratory); second semester, credit 2 units.

M. E. 422. *GAS ENGINES AND COMPRESSED AIR*.—Combustion of fuels in engine cylinders; Otto and Diesel cycles, carburetion; ignition systems; governing; Diesel engine accessories; high and low compression Diesels; limitations of each type of engine. Study of fans, multibladed and positive blowers; multi-stage air compression; selection of suitable types of air motors.

Must be preceded by M. E. 322.

3 hours a week (Class); second semester, credit 3 units.

M. E. 423. *HYDRAULIC MACHINERY*.—Study of hydraulic machinery with special reference to impulse wheels, turbines, centrifugal pumps, rotary pumps, and high pressure reciprocating pumps.

Must be preceded by M. E. 413.

3 hours a week (Class); second semester, credit 3 units.

M. E. 424. *HYDRAULIC LABORATORY*.—Laboratory practice in the study of water wheels and pumping devices.

Must be accompanied by M. E. 423.

3 hours a week (Laboratory); second semester, credit 1 unit.

M. E. 425. *INSPECTION TRIPS*.—Students are required to visit power stations, machine shops, manufacturing plants, etc., and to make reports upon assigned subjects such as general arrangement of plant, handling of fuel and materials, distribution of power, etc.

3 hours a week (Laboratory); second semester, credit 1 unit.

M. E. 426. *SEMINAR*.—Students are required to present papers on assigned subjects from engineering reference works and magazines. These papers are then discussed. Open only to seniors.

3 hours a week (Laboratory); second semester, credit 1 unit.

**M. E. 427 ADVANCED ACCOUNTING.**—Elements of costs; sources of cost data; methods of distributing factory burden; depreciation of wasting assets; analysis of costs; cost reports; bids.

2 hours a week (Class); second semester, credit 2 units.

**M. E. 428. INDUSTRIAL ADMINISTRATION.**—Planning department; purchasing and storing of materials; standardization and inspection; location and layout of industrial plants; employment problems; compensation of labor; welfare work.

6 hours a week (3 Class, 3 Lab); second semester, credit 4 units.

**M. E. 429. SHOP PRACTICE.**—This course provides the student with an opportunity to apply the theory of management, and to this end he is required to fill various executive positions in the organization of the shops. The class work consists in advanced instruction in shop methods and processes of manufacture.

5 hours a week (2 Class, 3 Lab); second semester, credit 3 units.

#### DEPARTMENT OF ELECTRICAL ENGINEERING

**E. E. 311. DIRECT CURRENT THEORY.**—Elementary theory of magnetism and electromagnetics, simple electric circuits, direct current generators and motors, and their characteristics, storage batteries, direct current instruments, and the discussion of their ordinary applications.

Must be preceded by Mathematics 21 and Physics 2E.

3 hours a week (Class); first semester, credit 3 units.

**E. E. 312. DIRECT CURRENT LABORATORY.**—Study of electrical instruments, simple electric circuits and switches. Measurements of electrical resistances, currents, and potentials. Simple tests and study of characteristics of direct current generators and motors.

Must be preceded or accompanied by E. E. 311.

6 hours a week (Laboratory); first semester, credit 2 units.

**E. E. 317. ELEMENTARY ELECTRICAL ENGINEERING.**—General course in Electrical Engineering covering direct current generators and motors, storage batteries, direct current control devices. Adapted to the needs of Civil Engineering students, and offered to them only.

Must be preceded by Mathematics 21 and Physics 2E.

3 hours a week (Laboratory); first semester, credit 1 unit.

**E. E. 318. SHORT D. C. LABORATORY.**—A short course in electrical laboratory covering measurement of resistance, study of electric circuits, and characteristics of direct current generators and motors. Offered to students of Civil Engineering only. This course is not equivalent to E. E. 312.

Must be either accompanied or preceded by E. E. 317.

3 hours a week (Laboratory); first semester, credit 1 unit.

**E. E. 321. ALTERNATING CURRENT THEORY.**—Elementary theory of electrostatics, dielectric circuits, circuits having various arrangements of inductance and capacity, alternating current generators and motors, transformers, transmission and distribution systems, alternating current instruments, etc. Continuation of course E. E. 311.

3 hours a week (Class); second semester, credit 3 units.

SEMESTRAL COURSES: ELECTRICAL ENGINEERING 225

E. E. 322. *ALTERNATING CURRENT LABORATORY.*—Study of electric circuits having various arrangements of inductance and capacity. Simple tests and study of the general characteristics of alternating current generators, induction motors, synchronous motors, transformers, etc.

Must be either accompanied or preceded by E. E. 321 and preceded by E. E. 312.

6 hours a week (Laboratory); second semester, credit 2 units.

E. E. 323. *ELECTRICAL CALCULATIONS.*—A course in electrical engineering mathematics and calculations covering electric and magnetic circuits, design of lifting electro magnets, rheostats, and other simple apparatus. Solution of alternating current problems using the complex numbers or symbolic methods.

Must be preceded by E. E. 311 and either accompanied or preceded by E. E. 321.

6 hours a week (Laboratory); second semester, credit 2 units.

E. E. 327. *ELEMENTARY ELECTRICAL ENGINEERING.*—A continuation course of E. E. 317, covering the study of alternating currents, alternating current generators and motors, transformers, transmission of electricity, illumination.

2 hours a week (Class); second semester, credit 2 units.

E. E. 328. *SHORT A. C. LABORATORY.*—A continuation of E. E. 318, covering alternating current circuits, meters, generators and motors, and transformers. Offered to students of Civil Engineering only. Not equivalent to E. E. 322.

Must be preceded by E. E. 317 and E. E. 318 and accompanied or preceded by E. E. 327.

3 hours a week (Laboratory); second semester, credit 1 unit.

E. E. 411. *ADVANCED ELECTRICAL ENGINEERING.*—A course covering the study of complicated electric and magnetic circuits, non-sinusoidal waves, alternating current commutator motors, rotary converters, induction, and synchronous motors, transmission lines, illumination, etc. The use of complex quantities for the solution of circuits, etc. Offered to seniors in Electrical Engineering.

Must be preceded by E. E. 311 and E. E. 321.

3 hours a week (Class); first semester, credit 3 units.

E. E. 412. *ADVANCED ELECTRICAL LABORATORY.*—An advanced course in electrical testing covering direct and alternating current generators, direct current motors, synchronous motors, induction motors, rotary converters, etc. The predetermination of their characteristics. Rectifiers and battery testing.

Must be preceded by E. E. 312 and E. E. 322, and accompanied by E. E. 411.

6 hours a week (Laboratory); first semester, credit 2 units.

E. E. 413. *ELECTRICAL EQUIPMENT.*—A course covering the selection and arrangement of electrical equipment for an industrial plant, such as a machine shop, cement plant, pumping plant, etc. It includes the choice

of systems, selection of motors, transformers, other apparatus, etc.. and the general illumination of the plants.

Must be preceded by E. E. 311 and E. E. 321.

8 hours a week (2 Class, 6 Lab); first semester, credit 4 units.

**E. E. 421. ADVANCED ELECTRICAL ENGINEERING.**—A continuation of the course E. E. 411.

3 hours a week (Class); second semester, credit 3 units.

**E. E. 422. ADVANCED ELECTRICAL LABORATORY.**—A continuation of the course E. E. 412.

6 hours a week (Laboratory); second semester, credit 2 units.

**E. E. 423. ELECTRIC POWER PLANT DESIGN.**—A combined course offered to seniors in Electrical Engineering only. It includes the complete design of a generating station for a given city, the selection of prime-movers, generators, auxiliary apparatus, transmission and distribution lines.

11 hours a week (2 Class, 9 Lab); second semester, credit 5 units.

**E. E. 428. APPLIED ELECTRICAL ENGINEERING.**—A lecture course given primarily for Mechanical Engineering students similar to E. E. 413.

Must be preceded by E. E. 311 and 321.

2 hours (Class); second semester, credit 2 units.

## FOUR-YEAR CURRICULUM FOR CIVIL ENGINEERING

*Leading to the Degree of B. S. in C. E.*

### FIRST YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Class	Lab Units		Class	Lab Units
Math 11.....	5	0 5	Math 12.....	5	0 5
Engl 1.....	3	0 3	Engl 1.....	3	0 3
Social Sc 1.....	3	0 3	Social Sc 1.....	3	0 3
Drawing 111.....	0	6 2	Drawing 121.....	0	6 2
Chem 25.....	3	6 5	Chem 25.....	3	6 5
Engineering Lectures.....	1	0 0	Totals.....	14	12 18
Totals.....	15	12 18			

### SECOND YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Class	Lab Units		Class	Lab Units
Math 21.....	5	0 5	Math 22.....	5	0 5
Engl 7 *.....	2	0 2	Geol 103 *.....	1	6 3
Phys 2 E.....	3	6 5	Phys 2 E.....	3	6 5
C. E. 211.....	2	6 4	C. E. 221.....	2	6 4
Shop 211 * (Wood)....	0	6 2	Zool 3 * .....	1	0 1
Totals.....	12	18 18	Totals.....	12	18 18

\* Will be offered both semesters.

## THIRD YEAR

*First Semester**Second Semester*

	Class	Lab	Units		Class	Lab	Units
Mech 311.....	5	0	5	Mech 321.....	5	0	5
C. E. 311.....	1	3	2	C. E. 321.....	1	3	2
C. E. 312.....	0	6	2	C. E. 322.....	4	0	4
M. E. 315.....	2	0	2	C. E. 323.....	0	3	1
E. E. 317.....	2	0	2	M. E. 325.....	3	0	3
C. E. 313.....	2	0	2	E. E. 327.....	2	0	2
C. E. 314.....	2	0	2	E. E. 328.....	0	3	1
E. E. 318.....	0	3	1	Totals.....	15	9	18
Totals.....	14	12	18				

## FOURTH YEAR

*First Semester**Second Semester*

	Class	Lab	Units		Class	Lab	Units
C. E. 411.....	3	0	3	C. E. 421.....	2	0	2
C. E. 412.....	4	0	4	C. E. 422.....	5	0	5
C. E. 413.....	0	15	5	C. E. 423.....	3	0	3
C. E. 414.....	4	0	4	C. E. 424.....	2	0	2
C. E. 415.....	1	0	1	C. E. 425.....	0	9	3
M. E. 414.....	0	3	1	C. E. 426.....	0	3	1
Totals.....	12	18	18	Electives.....			2
				Totals.....	12	12	18

VACATION WORK in Surveying: C. E. 381, 8 units.

FOUR-YEAR CURRICULUM FOR MECHANICAL  
ENGINEERING*Leading to the Degree of B. S. in M. E.*

## FIRST YEAR

(Same as Civil Engineering)

## SECOND YEAR

*First Semester**Second Semester*

	Class	Lab	Units		Class	Lab	Units
Math 21.....	5	0	5	Math 22.....	5	0	5
Engl 7.....	2	0	2	Phys 2 E.....	3	6	5
Phys 2 E.....	3	6	5	M. E. 221.....	2	0	2
M. E. 211.....	2	6	4	M. E. 222.....	2	0	2
Shop 211 (Wood).....	0	6	2	Shop 221 (Forge).....	0	3	1
Totals.....	12	18	18	Shop 222 (Machine).....	0	9	3
				Totals.....	12	18	18

## THIRD YEAR

<i>First Semester</i>			<i>Second Semester</i>				
	Class	Lab Units		Class	Lab Units		
Mech 311.....	5	0	5	Mech 321.....	5	0	5
M. E. 311.....	0	6	2	M. E. 321.....	1	6	3
M. E. 312.....	3	0	3	M. E. 322.....	3	0	3
M. E. 314.....	1	0	1	C. E. 223.....	1	3	2
M. E. 316.....	0	6	2	E. E. 321.....	3	0	3
E. E. 311.....	3	0	3	E. E. 322.....	0	6	2
E. E. 312.....	0	6	2				
Totals.....	12	18	18	Totals.....	13	15	18

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>				
	Class	Lab Units		Class	Lab Units		
M. E. 410.....	2	0	2	C. E. 421.....	2	0	2
M. E. 411.....	2	6	4	M. E. 421.....	0	6	2
M. E. 412.....	4	0	4	M. E. 422.....	3	0	3
M. E. 413.....	3	0	3	M. E. 423.....	3	0	3
M. E. 415.....	2	3	3	M. E. 424.....	0	3	1
Electives.....			2	M. E. 425.....	0	3	1
				M. E. 426.....	0	3	1
Totals.....			18	E. E. 428.....	2	0	2
				Electives.....			3
				Totals.....			18

FOUR-YEAR CURRICULUM FOR MECHANICAL-  
INDUSTRIAL ENGINEERING*Leading to the Degree of B. S. in M. E.*

## FIRST YEAR

## SECOND YEAR

## THIRD YEAR

(Same as Mechanical Engineering)

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>				
	Class	Lab Units		Class	Lab Units		
M. E. 411.....	2	6	4	C. E. 421.....	2	0	2
M. E. 413.....	3	0	3	M. E. 421.....	0	6	2
M. E. 416.....	0	6	2	M. E. 425.....	0	3	1
M. E. 417.....	2	0	2	M. E. 426.....	0	3	1
M. E. 418.....	2	0	2	M. E. 427.....	2	0	2
M. E. 419.....	2	0	2	M. E. 428.....	3	3	4
Electives.....			3	M. E. 429.....	2	3	3
				Electives.....			3
Totals.....			18				
				Totals.....			18

## FOUR-YEAR CURRICULUM FOR ELECTRICAL ENGINEERING

*Leading to the Degree of B. S. in E. E.*

### FIRST YEAR

(Same as Civil Engineering)

### SECOND YEAR

#### *First Semester*

	Class	Lab	Units
Math 21	5	0	5
Engl 7	2	0	2
Phys 2 E	3	6	5
M. E. 211	2	6	4
Shop 211 (Wood)	0	6	2
Totals	12	18	18

#### *Second Semester*

	Class	Lab	Units
Math 22	5	0	5
Phys 2 E	3	6	5
M. E. 221	2	0	2
C. E. 223	1	3	2
Shop 221 (Forge)	0	3	1
Shop 222 (Machine)	0	9	3
Totals	11	21	18

### THIRD YEAR

#### *First Semester*

	Class	Lab	Units
Mech 311	5	0	5
M. E. 311	0	6	2
M. E. 312	3	0	3
M. E. 314	1	0	1
M. E. 316	3	0	3
E. E. 311	0	6	2
E. E. 312	0	6	2
Totals	12	18	18

#### *Second Semester*

	Class	Lab	Units
Mech 321	5	0	5
M. E. 321	1	6	3
M. E. 322	3	0	3
E. E. 321	3	0	3
E. E. 322	0	6	2
E. E. 323	0	6	2
Totals	12	18	18

### FOURTH YEAR

#### *First Semester*

	Class	Lab	Units
M. E. 410	2	0	2
M. E. 413	3	0	3
M. E. 414	0	3	1
E. E. 411	3	0	3
E. E. 412	0	6	2
E. E. 413	2	6	4
Electives			3
Totals			18

#### *Second Semester*

	Class	Lab	Units
C. E. 421	2	0	2
M. E. 423	3	0	3
M. E. 424	0	3	1
E. E. 421	3	0	3
E. E. 422	0	6	2
E. E. 423	2	9	5
Electives			2
Totals			18

### SUMMARY OF ENROLLMENT OF THE COLLEGE OF ENGINEERING DURING THE ACADEMIC YEAR 1924-25

Year	Unclassified	E. E.	M. E.	C. E.	Total
Fifth year			1	2	3
Fourth year		1	20	45	66
Third year		5	30	56	91
Second year	50	1	15	43	109
First year	251				251
Totals	301	7	66	146	520

## SCHOOL OF SURVEYING OF THE COLLEGE OF ENGINEERING, UNIVERSITY OF THE PHILIPPINES

### HISTORY AND GENERAL INFORMATION

By the action of the Board of Regents, the School of Surveying of the Bureau of Lands was transferred to the College of Engineering, University of the Philippines, for a probationary period of two years. Its name has been changed to the School of Surveying of the College of Engineering, University of the Philippines. Instruction in the first year of the Surveying Course was begun on June 13, 1925.

### PURPOSE

The purpose of the School of Surveying is primarily to instruct the pensionados of the Bureau of Lands. However, it will also be open to any one with proper attainments in the same way as any school or college of the University.

### ENTRANCE REQUIREMENTS

The entrance requirements are the same as for the College of Engineering, except that Solid Geometry is not to be required.

### FEES

No fee is to be required from the Bureau of Lands pensionados. Other students will be required to pay the same fees as other students of the College of Engineering.

### CURRICULUM

#### FIRST YEAR

	First Semester			Second Semester			
	Class	Lab	Units		Class	Lab	Units
Math 0.....	3	0	3	Math 12.....	5	0	*5
Math 11.....	5	0	*5	C. E. 221.....	2	6	*4
English 1.....	3	0	*3	English 1.....	3	0	*3
C. E. 211.....	2	6	*4	Drawing 122.....	0	6	*2
Drawing 111.....	0	6	*2	L. S. C 121.....	0	9	3
Eng'g Lect.....	1	0	*0				
Totals.....	14	12	17	Totals.....	10	21	17

#### SECOND YEAR

	First Semester			Second Semester			
	Class	Lab	Units		Class	Lab	Units
C. E. 311.....	1	3	*2	C. E. 321.....	1	3	*2
Spanish 1.....	3	0	*3	Geology 13.....	3	0	3
Law of Property.....	4	0	4	Spanish 1.....	3	0	*3
Public Land Laws.....	2	0	2	Cadastral Land Sur-			
Mining Law.....	1	0	1	vying 222.....	3	6	5
Isolated Land Survey-				English 7.....	2	0	*2
ing 211.....	2	3	3	Survey Cost Account-			
Cadastral Land Sur-				ing.....	1	0	1
veying 221.....	2	3	3	Land Registration....	2	0	2
Totals.....	15	9	18	Totals.....	15	9	18

Land Surveying Practice 231—Summer vacations, 8 units.

Civil Engineering 331—After second year, 8 units.

The students of the Surveying School will take the regular work of the Departments of Physical Education and Military Science.

\* These units are regular work of the College of Engineering and will be counted on the records of students wishing to take a course in Civil Engineering after completing the course in the Surveying School.

## The College of Law

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### ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College:* Professor JORGE BOCOBO

*Secretary:* Professor MELQUIADES J. GAMBOA

*Director of Legal Clinic:* Professor EUSEBIO F. RAMOS

*Director of the Post-Graduate Review Course:* Professor JOSE A. ESPIRITU

### BUSINESS DIRECTORY

**OFFICE OF THE DEAN:** The office of the Dean is located in Room No. 9 on the first floor of the University Hall.

**TELEPHONE CONNECTION:** Tel. 2566.

**CORRESPONDENCE:** Address all communications to the Dean, College of Law, University of the Philippines, Manila, P. I.

## FACULTY OF INSTRUCTION

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**JORGE BOCOBO, LL.B.,**

Professor of Civil Law, Dean of the College of Law.

**GEORGE A. MALCOLM, A.B., LL.B., J.D., LL.D.,**

Justice of the Supreme Court; Professor of Public Law and Professorial Lecturer on Political Science.

**H. LAWRENCE NOBLE, A.B., A.M., LL.B.,**

Professor of Jurisprudence.

**JOSE A. ESPIRITU, LL.B.,**

Professor of Mercantile Law.

**EUSEBIO F. RAMOS, LL.B., LL.M.,**

Director, Legal Clinic (with rank of Associate Professor).

**VICENTE G. SINCO, A.B., LL.B., LL.M.,**

Associate Professor of Political Law.

**MELQUIADES J. GAMBOA, A.B., LL.B., LL.M.,**

Assistant Professor of Law and Secretary, College of Law.

**E. FINLEY JOHNSON, B.S., LL.B., LL.M.,**

Justice of the Supreme Court; Professorial Lecturer on Statutory Construction.

**NORBERTO ROMUALDEZ, A.B., LL.B., D.C.L.,**

Justice of the Supreme Court; Professorial Lecturer on the Evolution of Modern Civil Law.

**ANTONIO VILLA-REAL,**

Justice of the Supreme Court; Professorial Lecturer on Criminology and Penology.

**JOSE P. LAUREL, LL.B., D.C.L.,**

Senator, Fifth District; Professorial Lecturer on Constitutional Law and Municipal Government.

**JOSE ABAD SANTOS, LL.B., LL.M.,**

Professorial Lecturer on Jurisprudence.

**MARIANO H. DE JOYA, LL.B., LL.M.,**

Professorial Lecturer on Remedial Law.

**GUILLERMO B. GUEVARA, LL.B., LL.M.,**

City Fiscal, Manila; Professorial Lecturer on Criminal Law.

**ALEXANDER REYES, A.B., LL.B.,**

Professorial Lecturer on Philippine Government.

**ENRIQUE ALTAVAS, A.B., LL.B.,**

Chief of the General Land Registration Office; Professorial Lecturer on Land Registration and Mortgages.

**FRANCISCO A. DELGADO, LL.B., LL.M.,**

Professorial Lecturer on Remedial Law.

**DIONISIO DE LEON, A.B., LL.B.,**

Professorial Lecturer on Public Speaking.

**JUAN T. SANTOS, A.B., LL.B., LL.M., D.C.L.,**

Professorial Lecturer on Trial Practice.

**SIXTO DE LOS ANGELES, A.B., LL.M.,**

Professor and Head of the Department of Legal Medicine, College of Medicine; Lecturer on Legal Medicine.

**MARIANO D. GANA, M.A., LL.B., LL.M., D.C.L.,**

Assistant Professor of Economics and Trade, College of Liberal Arts; Lecturer on Taxation.

## **THE COLLEGE OF LAW**

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### **HISTORY AND PLAN**

The Board of Regents provided for the establishment of a College of Law in the University of the Philippines on January 12, 1911. The college was opened in July of the same year with two classes doing work. The entrance requirement was then graduation from a government high school or an approved private school, but with provision that one year later the completion of one year of college work would be a prerequisite to admission; on July 1, 1913, the requirement was raised to completion of two years of college work. Both a three- and a four-year course were then offered. Beginning with the academic year 1917-1918 the three-year course was discontinued, except for those previously enrolled, and the four-year course made fundamental with 110 units required for graduation. The College of Law is therefore committed to a four-year law course based on two years of prelegal collegiate training. Leading members of the bar and judiciary, and five instructors devoting their time exclusively to the school compose the faculty.

### **OBJECTS**

The College of Law has five principal purposes: (1) To prepare students by thorough and practical legal instruction conducted in the English language covering all the fundamental law subjects for the practice of law in the Philippines; (2) to graduate leaders for the country; (3) to contribute to Philippine legal literature and jurisprudence; (4) to bring repute to the Filipino people abroad by the standard of work done and to be of general use to the people of the Islands; and (5) to take the lead in the fostering of University activities and spirit and in law school matters generally.

### **AFFILIATIONS**

The College of Law is a member of the Association of American Law Schools, a member of the Bureau of Comparative Law, American Bar Association, and a "recognized and approved law school."

### **ADMISSION REQUIREMENTS**

Applicants for admission to the College of Law must have completed the two-year preparatory law course in the College of Liberal Arts, or its equivalent. The question of whether a course is equivalent to the prescribed requirements for admission will be determined in each case by the Dean. Graduates from the preparatory law course of the Ateneo de Manila, Silliman Institute, and San Juan de Letran with the title of Associate in Arts fulfill these requirements and will be admitted to the College of Law.

## HOW TO ENTER COLLEGE

The routine of entrance for students desiring to matriculate in the college for the first time is as follows: (1) Confer with the Dean of the College of Law, presenting a certificate of work accomplished and an application for matriculation; (2) if admitted, register with the Secretary of the University, paying fees to him; (3) secure class cards from the Secretary of the faculty; (4) hand proper class card to the instructor of the course at first recitation. Students previously matriculated should first report to the Dean for selection of courses, then pay fees to the Secretary of the University, and lastly secure class cards from the Secretary of the Law Faculty.

## FEES AND EXPENSES

The tuition fee is ₱50 per semester. Students of other colleges of the University taking courses in the College of Law amounting to less than 10 units a semester will be charged a tuition fee of ₱5 per unit a semester. In addition, all students are required to pay a library fee of ₱2.50 per year, and the sum of ₱1 each semester into the treasury of the athletic association. *All fees must be paid in advance.*

Textbooks are purchased by the students. Their estimated cost is about ₱70 per annum. Duplicate textbooks for the use of students with limited means can usually be found in the college library.

## TIME AND PLACE

The academic year 1926-1927 begins on June 14, 1926, and ends on March 22, 1927. The evening classes begin at 5, 6, and 7 p. m. of every working day. All law classes meet in University Hall, Calle Padre Faura, Ermita.

## BAR EXAMINATION RULES

Section 5 of the rules of the Supreme Court for the examination of candidates for admission to the practice of law requires that all applicants for admission, other than those presenting a license to practice issued by some court designated in rules 3 and 4, shall, before being admitted to the examination, satisfactorily show that they have attentively and regularly studied law for four years, and successfully completed all prescribed courses, in a law school or university, officially approved and recognized by the Secretary of Public Instruction. The affidavit of the candidate, accompanied by a certificate from the University or school of law, shall be filed as evidence of such facts, and further evidence may be required by the court.

Rule 6 as amended provides that: "6. Every applicant for admission shall file with the clerk of this court a certificate showing that he has study of law, he had studied in a recognized university or college of liberal satisfied the Secretary of Public Instruction, that, before he began the arts, requiring for admission thereto the completion of a four-year high school course, for a period of two academic years, and that he had actually pursued and satisfactorily completed the first two years of the course of study prescribed therein for a degree in arts or sciences: *Provided*, That this amendment shall not apply to any person heretofore admitted to the bar examination." (This amendment shall take effect on January 1, 1927.)

In connection with the bar examination, the Law Faculty on November 9, 1916, approved the following resolution:

"Hereafter, no undergraduate in the College of Law shall take the bar examination without express permission from the faculty. Any undergraduate violating this rule shall not be admitted again to the College of Law. The permission herein referred to may be given in exceptional cases only. The Dean is hereby authorized to prepare each year a list of graduates and undergraduates who can take the bar examination. The Dean will then confer with the Justices of the Supreme Court, asking them to admit to the examination only the persons whose names appear on the list."

## ATHLETICS

One hour a week of physical training is required of all students during their four years' residence in the University, unless exempted therefrom for valid reasons by proper authority.

## MILITARY DRILL

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

## ATTENDANCE

**ATTENDANCE.**—The Law Faculty has laid down the following rules concerning attendance:

1. Any student who, for unavoidable cause, is obliged to absent himself from any college exercise must obtain a written excuse from the Secretary of the Law Faculty, to be shown his professors.

2. Excuse for absence does not absolve the student from doing the work covered by the class during his absence, to the satisfaction of the professor in charge.

3. Any student who, during the semester, has for any cause been absent for more than the equivalent of four weeks' exercises in any subject shall be excluded from the examination in that subject and required to take the work again in class.

4. Tardiness shall be considered as absence.

5. Any student who, without permission of the professor, leaves the classroom for the remainder of the hour or stays out for more than 10 minutes, will be marked absent.

6. Every excuse must be asked for within two class days to be counted from the day a student returns to his classes, and must be presented to the instructors without delay. Failure to comply with either provision of this rule shall cause any absence to be unexcused.

7. Obtaining an excuse on misrepresentation shall constitute a serious breach of

discipline and appropriate action will be taken accordingly.

8. Monthly reports of absences shall be forwarded to the Dean's office between the 7th and 10th of each month.

9. Shortly before the semester examinations, the Dean will issue to the members of the Faculty a list of students whose grades should be reduced on account of absences, specifying in what course or courses such reductions shall be made. Reductions shall be designated thus: "No," which means that a student cannot take the examination and must repeat the course; "H," heavy; "M," medium; and "L," light. Every professor is also authorized to effect reductions as to students not listed by the Dean.

10. In case of absence from examination, the student concerned may, with the permission of the Dean, take the next regular examination in the subject, provided he does not come under rule 3.

11. Every student who wishes to discontinue his studies in the College of Law must, before leaving school, apply to the Dean for honorable dismissal.

12. Any student who abandons or refuses to attend his class when there is an order that classes will be held as usual, shall be marked absent and given a grade of zero for that recitation period, by the instructor concerned.

## WORK IN OTHER COLLEGES

Students may, with the permission of the Dean and without additional expense, except the payment of laboratory fees, elect courses in other colleges of the University. The work in political science, history, English, and economics is especially valuable for law students.

## STUDENTS' ADVISER

The Dean or, in his absence, the Secretary of the Law Faculty acts as adviser to law students. The offices of the Dean and the Secretary are open daily from 4 to 5 p. m. for this purpose.

## LIBRARIES

The college possesses a working law library. Students also have access to the Philippine Library and to the Libraries of the Supreme Court and the office of the Attorney-General.

## STUDENTS' ACTIVITIES

The College of Law plays a leading rôle in the development of college spirit and proper student activities. The different classes are organized. The "Philippine Barristers" meet once a week for practice in public speaking and parliamentary law, and give two annual public programs. The "Junior Philippine Senate," whose members are selected by reason of scholastic and oratorical attainments, is patterned after the Philippine Senate and is designed to give training in legislation. In the "Philippine Barristers" and the "Junior Philippine Senate," the students use English and Spanish. Practice clubs are organized in the Junior class for the trial of moot-court cases. The College of Law Day includes an interclass athletic meet (with appropriate prizes), a musical program and general rejoicing. The College of Law Glee Club sings on University occasions as well as in College of Law programs. The Annual Oratorical Contest, for which Hon. Manuel L. Quezon, President of the Philippine Senate, gives the prizes, is an important event in the College of Law. There is also an annual trial in Spanish, to which the public is invited. The Student Council, composed of the heads of the different organizations and representatives from each class, acts in an advisory capacity to the Dean on student affairs. The college participates in the activities of the University Cadet Corps, in the publication of a University annual and in the Rizal Day parade. At the end of the second semester, the seniors have a program of activities, such as farewell gathering, class day exercises, athletic games with the faculty and tree planting. The law alumni hold an annual meeting in commencement week.

## PRIZES AND HONORS

The following prizes, under the conditions named, are awarded during each academic year: Manresa's Commentaries on the Civil Code and Wigmore on Evidence offered by an Alumnus of the University to the two students who, during the entire course, have, respectively, attained the highest scholastic standing; Callaghan & Co. Law Publishers, Chicago prize, consisting of the Cyclopedic Law Dictionary to the student who, in

his second year in the College of Law, attains the best general average during that year; a gold medal and a silver medal and a cup furnished by Senate-President Quezon as prizes for the winners of the oratorical contest; United States Supreme Court Digest, Extra Annotated, 7 volumes, and Jones on Evidence, given by the Lawyers' Coöperative Publishing Company for the best thesis; the Malcolm prizes consisting of Manresa's Commentaries on the Civil Code and Wigmore on Evidence for the two best reports in connection with the course in Legal Ethics; and an athletic pennant to the class winning the college athletic meet, with prizes for the two individual winners.

The honor list for the calendar year 1917-1918 includes the following: Highest scholastic standing for entire course, first, Ramon R. San Jose; second, Mariano Ampil; valedictorian 1918 Law Class, Ramon R. San Jose; best thesis, Manuel Gallego; second best thesis, Felix Bautista, second year honors, Tomas Concepcion; oratorical contest, first, Bibiano L. Meer; second, Mariano Ampil.

The honor list for the calendar year 1918-1919 includes the following: Highest scholastic standing for entire course, first, Cesar Bengzon; second Ramon B. Felipe; valedictorian 1919 Law Class, Cesar Bengzon; best thesis, Vivencio F. Reyes; second best thesis, Engracio Abasolo; second year honors, Roman Ozaeta; oratorical contest, first, Dionisio de Leon; second, Ramon B. Felipe.

The honor list for the calendar year 1919-1920 includes the following: Highest scholastic standing for entire course, first, Ladislao Yap; second, Francisco Ventura; valedictorian 1920 Law Class, Francisco Ventura; best thesis, Leoncio Monzon; second best thesis, Bibiano L. Meer, and Ladislao Yap; second year honors, Vicente L. Faenlar; oratorical contest, first, Vicente Sinc; second, Pio Duran.

The honor list for the calendar year 1920-1921 includes the following: Highest scholastic standing for entire course, first, Manuel M. Lim; second, Emiliano G. Remo; valedictorian 1921 Law Class, Manuel M. Lim; best thesis, Manuel M. Lim; second best thesis, Benito Soliven; second year honors, Paulino Ybañez; oratorical contest, first, Benito Soliven; second, Cipriano Navarro.

The honor list for the calendar year 1921-1922 includes the following: Highest scholastic standing for entire course, first Vicente L. Faenlar; second, Jose B. L. Reyes; valedictorian, Vicente L. Faenlar; best thesis, Crispin Llamado; second best thesis, Leocadio Lalín; second year honors, Domingo Zavalla; oratorical contest, first, Jose Romero; second, Lorenzo Tañada.

The honor list for the calendar year 1922-1923 includes the following: Highest scholastic standing for entire course, first, Paulino Ybañez; second, Vicente de la Cruz; Valedictorian, Paulino Ybañez; Best thesis, Jose Batungbacal; second best thesis, Bernardo Farrales; Second year honors, Rafael Dinglasan; Malcolm Prizes, first, Paulino Ybañez; second, Roque Desquitado; oratorical contest, first, Simon Santos; second, Juan S. Reyes.

The honor list for the calendar year 1923-1924 includes the following: Highest scholastic standing for entire course, first, Domingo Zavalla; second, Francisco Capistrano; Valedictorian, Domingo Zavalla; Best thesis, Jose Bonto, second best thesis, Estela Romualdez; Second year honors, Pompeyo Diaz; Malcolm Prizes, first, Roberto Regala; second, Domingo Zavalla; oratorical contest, first Gerardo Florendo; second, Jose A. Uy.

The honor list for the calendar year 1924-1925 includes the following: Highest scholastic standing for entire course, first, Rafael Dinglasan; second, Felicing Tirona; Valedictorian, Rafael Dinglasan; best thesis, Felicing Tirona; second best thesis, Eudocio Cacho; second year honors, Domingo Guevara; Malcolm Prizes, first, Felicing Tirona; second, Conrado Paras; Oratorical Contest, first, Martin Dolorico; second, Felicing Tirona.

### SYSTEM OF INSTRUCTION

The question-and-answer method is the fundamental principle of classroom instruction in this college, said method being calculated to achieve the best results in mental training and the acquisition of knowledge of the law. Whether the class is studying a textbook, or cases, or provisions of the statute law, the Socratic method is adopted, and lectures are very rarely given. The title of "Lecturer" given to some members of the Law Faculty does not mean that they generally use the lecture system.

The courses are based on the statute law in force in the Islands and the cases construing the same. The Anglo-American law is resorted to in case the local law is silent on any given point, and even when the local law has an express provision, the common law is frequently studied for the purpose of comparison. The statute Law, case books, textbooks, and outlines are used.

Beginning with the first semester of 1917-1918, the Law Faculty holds a midsemester meeting for the purpose of discussing the methods of teaching, in the light of local conditions.

### PRACTICE COURTS

The purpose of the practice courts, in conjunction with the courses in pleading and practice, is to qualify the student, as far as possible, for the actual practice of his profession upon graduation. During the first year in the course in Elementary Law, instruction is given in finding the law, in legal bibliography, and in the use of decisions and statutes. During the second year in Elementary Procedure, general introductory principles, including the elements of common law pleading and the organization and jurisdiction of the courts of the Islands, are studied; criminal procedure follows, taking up the principles in this branch. During the third year, civil procedure covers the principles of code pleading, followed by the course in Evidence. Trial practice and a general course in legal ethics and practice come in the senior year. Supplemental to the foregoing, the third year students are given instruction and practice as in justice of the peace courts, and in brief making and the argument and decision of questions of law, before practice clubs sitting as supreme courts, composed of members of the faculty and students. In the senior year every student is required to act as counsel in the preparation and trial of three moot-court cases in which all stages of the proceedings are carried out from the filing of the complaint to final judgment. At least one case must be carried up on appeal to a supreme court composed of faculty and alumni members. The organization and conduct of the practice courts is in charge of a member of the faculty assisted by other members of the faculty and by judges and practicing attorneys. The senior practice court is completely organized with a presiding judge, a clerk, and sheriff. In the practice clubs as well as in the senior practice court, English and Spanish are used.

## LEGAL CLINIC

Since 1918-1919, a Legal Clinic has been established, following one of the latest innovations in legal education in the United States and to the end that the student may gain experience in the actual practice of the legal profession. The clinic is under the supervision of the professor in charge of procedural courses, who is at the same time practicing law in Manila. Another member of the faculty takes immediate control of the clinic and devotes his entire time thereto. The members of the senior class are required to assist said attorneys in the conduct of cases in the Manila courts as in preparation for trial, drawing up pleadings, and looking up the law. Seniors must be present at the trial of the cases to which they are detailed, take notes of the way the trial is conducted, and then confer thereon with the attorney in charge of the clinic. They must also help the attorney in the appeal of cases to the Supreme Court.

The attorney in charge will report at least once a month on the work of each senior and give grades at the end of each semester.

## READING COURSES

The college believes that in addition to classroom work, students should be led to desire the broadest possible legal training. This end can best be subserved by acquaintance with the great jurists and commentators, past and present. Graduates should not only be acquainted with legal principles and the crystalized statute law, but with the reasons for the basic rules and the historical development. The lawyer thus is not only prepared to cope with the legal problems of the day, but also to keep in the vanguard of skillful leadership in the coming generation.

As far as our facilities permit, students are asked to do private reading under the supervision of a member of the faculty. A minimum amount of work is required and credit therefor given, but much is left optional with the hope that the student will read much more than is assigned and acquire the habit of keeping abreast with the times in his profession and be an able adviser, or legislator, as opportunity offers. The books to be read have been carefully selected and placed in the library within easy reach. Attention is directed to current articles in magazines and the student advised as to what books are most needful for his present studies and most suitable for his personal library. The different groups of students meet for consultation and guidance, more often in the first years of their course, thus gradually training them for independent method and thought. Students are urged to do much of their reading during vacation.

## THURSDAY ASSEMBLY

Every Thursday the student body meets for the purpose of singing college, popular, and patriotic songs; to listen to a brief address on character in general and legal ethics in particular by members of the faculty, of the bench, and of the bar; and to discuss student affairs and plans. This weekly assembly thus arouses cheerfulness among the students in the midst of their hard work; emphasizes the need of high ideals of life; and fosters coöoperative and college spirit.

**BRIEFS**

Each candidate for a degree is required in his senior year to prepare and present two briefs, one in the first semester and the other in the second semester. The brief must not be less than 2,000 words in length. It must consist of a thorough and intelligent comparison and discussion of the cases pertaining to the subject. It is prepared under the supervision of the professor in charge of practice.

**SCHOLARSHIP RULES**

It is the purpose of the college to have its work characterized by completeness and thoroughness. Mid-semester "smoke-up" notices are sent to students doing unsatisfactory work. The examinations held at the end of each semester are made comprehensive and searching. The grades of students on their examinations and class records are indicated by the numbers 1, 2, 3, 4, 5, the first three numbers indicating completion of the course, 4 conditionally passed, and 5 not passed. The grade of 4 will ordinarily not be given by the Law Faculty.

The rules adopted by the Law Faculty provide as follows:

Every student whose class standing in any subject two weeks before the examination period is less than 60 per cent shall be excluded from the examination in said subject and shall be reported with a grade of 5. The instructor in charge of the subject shall notify him at once of his exclusion from the examination.

Without the consent of the Dean, no student shall give up any subject after the middle of the semester if his class standing in said subject is poor. Any students violating this rule shall be reported with a grade of 5 at the end of the semester.

No student of the College of Law shall, directly or indirectly, ask any person to recommend him to his professor or professors for any grade in his class record, examination paper, or final report of grades. Any student violating this rule shall lose all credit in the subject or subjects regarding which such recommendation is made. The fact that a student is thus recommended shall be *prima facie* evidence that the recommendation is made at the request of the student concerned.

Any student of the College of Law, except those carrying special subjects, not passing at least one-half of the units taken will be placed on probation. Any students so placed on probation shall not be eligible to participate in any public activity of the College or University.

Any student necessary to be placed on probation for a second successive semester will be dropped from the rolls.

Freshmen found by the faculty to be deficient at the end of the first semester will be required to pass at least twelve units in the College of Liberal Arts, to be designated by the Dean, before being permitted to reenter the College of Law.

No student will be recommended for graduation who does not have such number of grades of 1 and 2 as to make his general average  $2\frac{1}{2}$  or better. In the graduate course, a general average (on basis of hours of credit) of  $2\frac{1}{2}$  is the standard of scholarship necessary for graduation with the degree of Master of Laws.

No student will be recommended for graduation who is not reported as having such knowledge of civil law, mercantile law, remedial law, criminal

law, private international law, conveyancing and practice (trial practice, evidence and practice court) as should enable him to pass the bar examination without difficulty.

### THESIS

Each candidate for the degree in the graduate and undergraduate courses must prepare and present a satisfactory thesis upon some subject on which the law is unsettled, disputed, or in a formative condition. The thesis must consist of a thorough and intelligent comparison and discussion of the cases pertaining to the subject and must represent the original independent study and investigation of the student. In the graduate course the thesis must be of marked excellence, constituting a contribution to legal scholarship.

The thesis must not be less than 4,000 words in length and must be filed with the Dean on or before the first Tuesday after classes are resumed in January of the year in which the degree is to be granted.

Rules governing the writing of theses have been promulgated by the Thesis Committee. A list of subjects is issued annually by that body. All theses approved are bound and kept in the college library, and all the rights therein belong exclusively to the University of the Philippines. Those of exceptional merit are published.

### DEGREE

Students must complete the full courses of instruction, perform all required exercises, and pass all examinations to the satisfaction of the Faculty before being recommended for the degree of Bachelor of Laws.

### INFORMATION

For further information, address the Dean of the College of Law, University of the Philippines, Manila, P. I. The Dean and the Secretary will be in their offices in University Hall from 4 to 6 p. m., June 8 to June 10, 1925, for the purpose of conferring with students, and from 9 to 12 a. m. and 3 to 5 p. m. from June 9th to 13th to register students.

### UNDERGRADUATE SEMESTRAL COURSES

#### FIRST YEAR

**ELEMENTARY LAW.**—This course gives a general view of the development of the law and of rights, remedial and substantive; a description of the sources of the law in force in the Philippines, and a systematic outline of the principal branches of the law. Its chief purposes are to set forth the fundamental conceptions which underlie every department of the law, and to indicate the subject and scope of the various courses offered in the curriculum. The following subjects are also covered: Where to find the law; how to use decisions and statutes (including study of cases); how to find the law; legal bibliography.

Textbook: Smith, Elementary Law.

Reference book: Cooley's Brief Making and the Use of Law Books.

5 hours a week (Class); first semester, credit 2 units.

Section A, Professor GAMBOA.

Section B, Professor RAMOS.

*INSTITUTES OF CIVIL LAW.*—A study of the evolution of Roman Law from the earliest period to the completion of the *Corpus Juris*, with a critical analysis of the Institutes. Followed by a historical survey of the development of the civil law as now existing in the Philippines. Sylabi and text of the Institutes. A companion course to Elementary Law, serving to introduce civil law.

Textbooks: Lobingier, *The Evolution of the Civil Law*; Espiritu, *Readings on Roman Law*; Hammond, *Sandars Justinian*.

4 hours a week (Class); first semester, credit 4 units.

Section A, Professor ESPIRITU.

Section B, Professor GAMBOA.

*PERSONS AND FAMILY RELATIONS.*—Based on Book I and Book IV, Title III, of the Civil Code; the Spanish Marriage Law of 1870; the Divorce Law; section 551–581 and 765–772 of the Compiled Code of Civil Procedure; and on General Orders No. 68. Outlines, recitations, and assigned cases.

Textbooks: Bocobo, *Outlines of the Law of Persons and Family Relations*; Tiffany's *Persons and Domestic Relations*.

Reference Books: Manresa's *Commentaries on the Civil Code*.

5 hours a week (Class); first semester, credit 3 units.

Section A, Dean BOCOBO.

Section B, Professor RAMOS.

*PHILIPPINE GOVERNMENT.*—Its development and fundamentals together with an analysis of the structure and functions of the present Insular Government. A large portion of the Administrative Code is studied. Textbook, recitations, assigned reading, and reports.

Textbook: Malcolm, *Philippine Government*.

3 hours a week (Class); first semester, credit 3 units.

Professor SINCO.

*READING COURSE I.*—Private reading of assigned books: Cooley and Ames, *Brief Making and Use of Law Books*; Lee, *Historical Jurisprudence*; Morris, *History of the Development of the Law*; Pollock, *Expansion of the Common Law*; General Survey of Events, Sources, Persons, and Movements in Continental Legal History; outlines of articles in current law magazines. Group meetings, outlines of work covered, and examinations.

Professor NOBLE.

*CRIMINAL LAW.*—Study of the Penal Code, of the penal portions of the Administrative Code and other penal acts. Outlines, recitations, and assigned cases from the Philippine Reports.

Textbook: Guevara, *Penal Code of the Philippines, annotated*, 2d Edition; Guevara, *Outlines on Crimes*.

Reference: Viada, *Comentarios al Código Penal*.

6 hours a week (Class); second semester, credit 6 units.

Professor GUEVARA.

*OBLIGATIONS (Contracts).*—A study of the general principles of obligations, contracts, and quasi contracts under the civil law with comparative inquiries into the American Law. Based on Book IV, Titles I, II, XII (chapters 1, 3) XIII, XVI (chapter 1), of the Civil Code. Outlines,

recitations, and assigned work, including cases from the Philippine and American Reports.

Textbook: Bocobo, Outlines of the Law of Obligations.

Reference books: Manresa's Commentaries on the Civil Code; Bishop on Contracts.

5 hours a week (Class); second semester, credit 5 units.  
Dean BOCOBO.

**PUBLIC SPEAKING.**—Elements of elocution and argumentation. Recitation and practice with criticism.

Textbook: Fulton and Trueblood, Essentials of Public Speaking; Laycock and Scales, Argumentation and Debate.

2 hours a week (Class); second semester, credit 2 units.  
Professor DE LEON.

**READING COURSE (II).**—Continuation of Reading Course (I).

Professor NOBLE.

#### SECOND YEAR

**AGENCY.**—Based on Book IV, Book II, Title III, of the Code of Commerce. Assigned cases from the Philippine and American Reports.

Textbook: Goddard's Cases on Agency.

2 hours a week (Class); first semester, credit 2 units.  
Professor ESPIRITU.

**SALES.**—A study of the law of purchase and sale, with comparative inquiries into the American law. Based on Book IV, Titles IV and V of the Civil Code, and Book II, Title VI of the Code of Commerce. Outlines and recitations. Assigned cases from the Philippine Reports.

Textbook: Noble, Outlines of the Law of Sales; Woodward, Cases on Sales.

Reference books: Manresa's Commentaries on the Civil Code.

2 hours a week (Class); first semester, credit 2 units.  
Professor NOBLE.

**ORATORY.**—A study of the lives of great orators; analysis of the world's greatest orations. Particular attention is given to forensic oratory. Each student must write one complete and finished oration.

Textbooks: Shurter, Rhetoric of Oratory; Shurter, Masterpieces of Modern Oratory. Textbook on Philippine Eloquence in preparation.

2 hours a week (Class); first semester, credit 2 units.  
Professor DE LEON.

**PROPERTY.**—Includes both Real and Personal Property. A study of Book II; Book III, Titles I, II; Book IV; Titles VI (chapters 1, 2), VII, XII (chapter 4), XVIII of the Civil Code; chapter III, Code of Civil Procedure.

Textbook: Bocobo, Outlines of the Law of Property.

Reference books: Manresa's Commentaries on the Civil Code.

4 hours a week (Class); first semester, credit 4 units.  
Dean BOCOBO.

**TORTS AND DAMAGES.**—A study of Torts and Damages under the Civil Law and Common Law. Recitations.

**Textbook:** Chapin, Cases on Torts; Cooley, Cases on Damages; Noble, Outlines on Torts and Damages in Philippine Law.

3 hours a week (Class); first semester, credit 3 units.  
**Professor NOBLE.**

**READING COURSE (III).**—Private reading of assigned texts: Lombroso, Crime, Its Causes, and Remedies; De Quiros, Modern Theories of Criminality; Garofalo, Criminology; Parmelee, Criminology; Tarde, Penal Philosophy; digest of articles on criminology in current law magazines.

**Professor NOBLE.**

**PHILIPPINE BARRISTERS (I).**—General literary practice.

**Professor GAMBOA.**

**ADMINISTRATIVE LAW.**—The law governing administrative action, including the law of officers and elections and extraordinary remedies. Based on portions of the Administrative Code.

**Textbook:** Goodnow's Cases on the Law of Officers; Noble, Outlines on Administrative Law of the Philippine Islands.

2 hours a week (Class); second semester, credit 2 units.  
**Professor NOBLE.**

**BAILMENTS AND CARRIERS.**—Brief consideration of bailments in general, and particular attention to the law of pledges, innkeepers, and common carriers of goods; carriers of passengers; the post office and telegraph and telephone companies, as carriers of the mail and intelligence. Based on Book IV, Titles VI (chapter 3), X, XI, XV (chapter 2), of the Civil Code; Book II, Titles IV, V, VII, of the Code of Commerce, and various Acts of the Philippine Legislature. Assigned cases.

**Textbooks:** Goddard, Outlines of Bailments and Carriers; Goddard's Cases on Bailments and Carriers; Noble, Outlines on the Law of Bailments and Carriers in the Philippine Islands.

2 hours a week (Class); second semester, credit 2 units.  
**Professor NOBLE.**

**CRIMINAL PROCEDURE.**—Study of the Code of Criminal Procedure as amended and of portions of the Administrative Code. Outlines, recitations, and assigned cases from the Philippine Reports.

**Textbooks:** De Joya, Outlines on Criminal Procedure; De Joya, Criminal Procedure, Annotated.

2 hours a week (Class); second semester, credit 2 units.  
**Professor VILLA-REAL.**

**MERCANTILE LAW.**—Based on Book IV, Title XIV, of the Civil Code; Book I, Titles I, II, III, IV, and Book II, Titles IX, XI, XII, XIII of the Code of Commerce; the Warehouse Receipts Law; and the Negotiable Instruments Law. Includes suretyship. Assigned cases.

**Textbooks:** Espiritu, Outlines on Mercantile Law; Espiritu, Annotated Code of Commerce; Smith and Moore, Cases on Bills and Notes.

**Reference Books:** Ogden's Negotiable Instruments; Corpus Juris, Vol. VIII.

4 hours a week (Class); second semester, credit 4 units.  
**Professor ESPIRITU.**

**PARTNERSHIP.**—Based on Book IV, Title VIII, of the Civil Code, and on Book II, Title I, sections, 1, 2, 3, 4, 5, 6, and 13, and Title II, of the Code of Commerce. Assigned cases.

Textbooks: Gilmore, Partnership; Gilmore, Cases on Partnership.

2 hours a week (Class); second semester, credit 2 units.

Professor ESPIRITU.

**ELEMENTARY PROCEDURE.**—A study of the history and purpose of procedure; the organization and jurisdiction of the courts; and the general principles of remedial law, including the elements of common-law pleading. Special attention to the inferior courts. Outlines, recitations, and assigned work.

Textbooks: De Joya, Code of Civil Procedure, Annotated; De Joya, Outlines of Elementary Procedure.

References: Bryant's Code Pleading; Phillips on Code Pleading.

2 hours a week (Class); second semester, credit 2 units.

Professor GAMBOA.

**READING COURSE (IV).**—Selected Essays in Anglo-American Legal History; Hill, Decisive Battles of the Law; Pollock, Maine's Ancient Law; Wigmore, Principles of Judicial Proof.

Professor NOBLE.

**PHILIPPINE BARRISTERS (II).**—Practice in debating.

1 hour a week; second semester.

Professor GAMBOA.

### THIRD YEAR

**CIVIL PROCEDURE.**—Study of the Code of Civil Procedure as amended, and of portions of the Administrative Code. Outlines and assigned cases from the case book and the Philippine and California Reports. Code pleading and practice is emphasized.

Textbook: Sunderland's Cases on Code Pleading; De Joya, Code of Civil Procedure, Annotated.

References: Bryant's Code Pleading; Phillips on Code Pleading; Pomeroy's Code Remedies.

5 hours a week (Class); first semester, credit 5 units.

Professor DELGADO.

**ADMIRALTY.**—Study of Book III, Titles, I, II, III (sections 1, 2), IV, V, of the Code of Commerce; and of Acts 2507 and 2616. Assigned cases.

Textbooks: Espiritu, Outlines on Admiralty; Espiritu, Annotated Code of Commerce.

Reference books: Hughes on Admiralty; Ames, Cases on Admiralty.

1 hour a week (Class); first semester, credit 1 unit.

Professor ESPIRITU.

**WILLS, DESCENT, AND ADMINISTRATION.**—Comprehends the nature of wills; formalities prescribed by law for the due execution of wills; the probating of wills, testamentary and legal succession; the administration of decedent's estates, etc. Based on Book III, Title III of

the Civil Code; sections 582-764 and 773-783 of the Compiled Code of Civil Procedure; and portions of the Administrative Code and Land Registration Law. Outlines and recitations. Assigned cases.

Textbook: Costigan's Cases on Wills and Administration; Bocobo and Noble, Outlines on the Law of Wills, Descent, and Administration.

Reference Book: Manresa's Commentaries on the Civil Code.

3 hours a week (Class); first semester, credit 3 units.

Professor NOBLE.

**PRIVATE CORPORATIONS.**—Based on the Corporation Law and the Public Utility Law, and portions of other laws and the Code of Commerce. Recitations; assigned cases.

Textbook: Richard, Cases on Private Corporations.

Reference books: Elliott on Private Corporations; Clark on Corporations.

2 hours a week (Class); first semester, credit 2 units.

Professor ESPIRITU.

**PUBLIC CORPORATIONS.**—Essential principles, cases, and discussion of current questions in municipal government, and the local law. Subjects for special study: Government ownership of public utilities; State regulation of prices of commodities; the State in its relation to labor, bond issues, the influence of public opinion, etc.

Textbooks: Macy, Cases on Municipal Corporations; Noble, Outlines on the Law of Public Corporations.

2 hours a week (Class); first semester, credit 2 units.

Professor SINCO.

**MINING AND IRRIGATION LAW.**--Lectures with assigned work. Based on the Spanish Law of Waters of August 3, 1866, the Irrigation Law, sections 15, 20-62 of the Philippine Bill, and Acts of the Philippine Legislature.

1 hour a week (Class); first semester, credit 1 unit.

Professor NOBLE.

**BANKRUPTCY AND INSOLVENCY.**—Study of the Bankruptcy and Insolvency Law. Preparation of papers; recitations.

Textbook: Holbrook and Aigler, Cases on Bankruptcy.

1 hour a week (Class); first semester, credit 1 unit.

Professor ESPIRITU.

**READING COURSE (V).**—Wellman, Art of Cross-Examination, A Day in Court; Elliott and Elliott, The Work of the Advocate; Baldwin, The Young Man and the Law; Richards, Lincoln as a Lawyer; articles in current law magazines on procedure and evidence.

Professor NOBLE.

**PRACTICE CLUBS (I).**—Justice of the peace practice.

First semester.

Professor DELGADO.

**PHILIPPINE BARRISTERS (III).**—Drill in forensic oratory.

First semester.

Professor GAMBOA.

**INSURANCE.**—Based on Book IV, Title XII (chapters 1, 2), of the Civil Code, and on the Insurance Act, as amended. Recitations; assigned cases from the Philippine and American Reports.

1 hour a week (Class); second semester, credit 1 unit.  
Professor ESPIRITU.

**CONSTITUTIONAL LAW.**—The course is divided into five parts: I. Introductory; II. Comparative, including a study of the Constitutions of England, the United States, Spain, Cuba, Mexico, Japan, Australia, and Malolos; III. Historical—the Constitutional History of the Philippines; IV. Fundamental; and V. Constitutional limitations.

Textbook: Malcolm, the Constitutional Law of the Philippine Islands.

3 hours a week (Class); second semester, credit 3 units.  
Professor LAUREL.

**EVIDENCE.**—Based principally on sections 273–376 and 381–383 of the Compiled Code of Civil Procedure, and sections 55–63 of G. O. No. 58. Recitations and assigned cases.

Textbook: Wigmore's Cases on Evidence, new ed.; De Joya, Outlines on Evidence; De Joya, Annotated Code of Civil Procedure.

References: Wigmore on Evidence; Wellman's The Art of Cross-Examination.

4 hours a week (Class); second semester, credit 4 units.  
Professor DELGADO.

**PRIVATE CORPORATIONS.**—Continuation of course of first semester.

2 hours a week (Class); second semester, credit 2 units.  
Professor ESPIRITU.

**TAXATION.**—Based on portions of Acts of Congress and the Administrative Code.

Textbook: Goodnow's Cases on taxation.

1 hour a week (Class); second semester, credit 1 unit.  
Professor GANA.

**LAND REGISTRATION AND MORTGAGES.**—Based on the Philippine Bill, sections 13–18, 63–65; section 9, Jones Law; portions of the Administrative Code; the Friar Lands Act; the Public Land Law; the Land Registration Law; the Cadastral Act, as amended; the Spanish Mortgage Law; the Regulations for the enforcement of the Mortgage Law; and the Chattel Mortgage Law; assigned cases from the Philippine Reports; practical exercises.

Textbooks: Altavas, Land Registration, 2nd ed.; Altavas on Mortgages.  
4 hours a week (Class); second semester, credit 4 units.  
Professor ALTAVAS.

**READING COURSE (VI).**—Law reform and development of the law as instigated by great legal novels: Hugo, Les Misérables and Last Days of a Condemned Man; Dickens, Bleak House, Little Dorritt, Pickwick Papers, Oliver Twist; Reade, Foul Play, Never Too Late to Mend; Doyle, Micah Clarke; Stevenson, Kidnapped, David Balfour; Ford, Honorable Peter Stirling; Gaboriau, File No. 115; Hawthorne, Scarlet Letter; Tolstoi, Resurrection; Train, Tutt and Mr. Tutt, By Advise of Counsel, True Stories of Crimes; Courts, Criminals, and the Camorra, The Prisoner

at the Bar, The Confessions of Artemas Quibble; Galsworthy, Justice; McMurdy, Upas Tree; Rizal, Social Cancer, Reign of Greed. Outlines: Purpose of the story, the teaching or doctrine of the author, remedy suggested, comparison of the law of the times with Philippines law, suggested changes in local law.

Professor NOBLE.

*PRACTICE CLUBS* (II).—Argument and decision of cases before Supreme Courts on agreed statements of facts.

Second semester.

Professor DELGADO.

*PHILIPPINE BARRISTERS* (IV).—Drill in parliamentary law. Text-book: Robert's Rules of Order.

Second semester.

Professor GAMBOA.

#### FOURTH YEAR

*CONVEYANCING*.—Practical work in the preparation of all the more important forms of conveyances, including thereunder deeds, mortgages, wills and assignments of various sorts, contracts, agreements, corporate and partnership articles, and such other instruments as the lawyer in actual practice is likely to be called upon to prepare. The Notarial Law and other portions of the Administrative Code are also studied.

References: Church, Legal and Business Forms; Cowdery's Legal Forms; Fisher, Manual de Formularios.

2 hours a week (Class); first semester, credit 2 units.

Professor GAMBOA.

*CODE REVIEW* (Criminal Procedure).—A general survey and review of Criminal Procedure in its broadest sense.

Textbooks: Guevara, Code of Criminal Procedure, annotated; Guevara, Outlines on Criminal Procedure.

2 hours a week (Class); first semester, credit 1 unit.

Professor GUEVARA.

*LEGAL MEDICINE*.—It aims to cover the points most essential to the subject necessary to make the lawyer acquainted with the leading facts and principles of medicine and their application to the requirements of the law and the administration of justice. It is designed especially to meet the needs of the legal profession in the Philippines.

Specimens, charts, pictures, and other museum specimens illustrative of various branches of legal medicine, are used to facilitate instruction.

The students, in order to further their general knowledge on the subject and to enable them to examine medical men testifying as experts, are allowed to joint the medico-legal students of the College of Medicine once a month during the second semester without additional credit.

Textbooks: Angeles, S. de los, Legal Medicine, with reference to the Philippine Law and the Reports of the Philippine Supreme Court.

Collateral Reading: Wharton & Stillé's, Medical Jurisprudence; Steward, Legal Medicine.

2 hours a week (Class); first semester.

2 hours a month (Class); second semester.

Credit 2 units.

Professor S. DE LOS ANGELES.

*PUBLIC INTERNATIONAL LAW.*—Lectures, with assigned reading from Moore's Digest of International Law.

Textbook: Lawrence, Principles of International Law.

References: Davis' Elements of International Law (4th ed.); Hall's International Law (7th ed.); Wilson on International Law.

2 hours a week (Class); first semester, credit 2 units.

Professor DE JOYA.

*TRIAL PRACTICE.*—Study of text and outlines; preparation of pleadings; brief making, and criticism of work in Practice Court. Includes work in Legal Clinic, which is open thruout the year. Assigned cases from the Case Book and Philippine Reports.

Textbook: Sunderland, Cases on Trial Practice; De Joya, Outlines on Trial Practice.

3 hours a week (Class); first semester, credit 3 units.

Professor J. T. SANTOS.

*PRACTICE COURT.*—The purpose of the court is to afford students practical instruction in pleading and practice and actual experience in the commencement and trial of cases through their stages.

2½ hours a week (Class); first semester.

Professor VILLA-REAL.

*JUNIOR PHILIPPINE SENATE.*—Legislative practice.

1 hour a week (Class); first semester.

Professor DE LEON.

*CODE REVIEW* (Civil Law).—A general survey and review of civil law in its broadest sense.

3 hours a week (Class); second semester, credit 3 units.

Dean BOCOBO.

*CODE REVIEW* (Criminal Law).—A general survey and review of criminal law in its broadest sense.

1 hour a week (Class); second semester, credit 1 unit.

Professor VILLA-REAL.

*CODE REVIEW* (Political Law).—A thorough review of the Political Law of the Philippine Islands, including Philippine government, the public corporations, administrative law and constitutional law. The course is intended to coördinate the principles on these subjects and as preparation for the bar examination.

Texts: Malcolm, The Constitutional Law of the Philippine Islands; Noble, Outlines on the Political Law of the Philippine Islands.

3 hours a week (Class); second semester, credit 3 units.

Professor NOBLE.

*CODE REVIEW* (Remedial Law).—A general survey and review of Civil Procedure, Trial Practice and Evidence. Code Review (Criminal Procedure) is not included in this course, as it is given during the first semester.

2 hours a week (Class); second semester, credit 2 units.

Professor DE JOYA.

*PRIVATE INTERNATIONAL LAW.*—Explanatory lectures; recitations; study of text; leading cases.

Textbooks: Minor's Conflict of Laws; Lorenzen, Cases on Conflict of Laws.

2 hours a week (Class); second semester, credit 2 units.

Professor J. A. SANTOS.

**CODE REVIEW** (Mercantile Law).—A general survey and review of mercantile law in its broadest sense.

3 hours a week (Class); second semester, credit 3 units.

Professor ESPIRITU.

**LEGAL ETHICS AND GENERAL PRACTICE**.—Lectures; recitations; study of a text and code of ethics; practical suggestions for practice.

Textbook: Malcolm, Legal Ethics.

1 hour a week (Class); second semester, credit 1 unit.

Professor MALCOLM.

**BRIEF.**

**PRACTICE COURT**.—Follows same plan as in first semester.

2½ hours a week (Class); second semester.

Professor VILLA-REAL.

**JUNIOR PHILIPPINE SENATE**.—Legislative practice.

Second semester.

Professor DE LEON.

## THE FOUR-YEAR LAW CURRICULUM

### FIRST YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Elementary Law.....	2	Criminal Law.....	6
Institutes of Civ Law.....	4	Obligations.....	5
Persons and Family Relations..	3	Public Speaking.....	2
Philippine Government.....	3	Reading Course (II).....	—
Reading Course (I).....	—	Total.....	13
Total.....	12		

### SECOND YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Agency.....	2	Administrative Law.....	2
Sales.....	2	Bailments and Carriers.....	2
Oratory.....	2	Criminal Procedure.....	2
Property.....	4	Mercantile Law.....	4
Torts and Damages.....	3	Partnership.....	2
Reading Course (III).....	—	Elementary Procedure.....	2
Philippine Barristers (I).....	—	Reading Course (IV).....	—
Total.....	13	Philippine Barristers (II).....	—
		Total.....	14

## THE COLLEGE OF LAW

## THIRD YEAR

<i>First Semester</i>	Units	<i>Second Semester</i>	Units
Civil Procedure.....	5	Insurance.....	1
Admiralty.....	1	Constitutional Law.....	3
Wills, Descent, and Administra- tion.....	3	Evidence.....	4
Private Corporations.....	2	Private Corporations.....	2
Public Corporations.....	2	Taxation.....	1
Mining and Irrigation Law.....	1	Land Registration and Mort- gages.....	4
Bankruptcy and Insolvency.....	1	Reading Course (VI).....	-----
Reading Course (V).....	-----	Practice Clubs (II).....	-----
Practice Clubs (I).....	-----	Philippine Barristers (IV).....	-----
Philippine Barristers (III).....	-----	Total.....	15
Total.....	15		

## FOURTH YEAR

<i>First Semester</i>	Units	<i>Second Semester</i>	Units
Code Review: Criminal Proce- dure.....	1	Code Review: Civil Law.....	3
Conveyancing.....	2	Code Review: Mercantile Law.....	3
Legal Medicine.....	2	Code Review: Remedial Law.....	2
Public International Law.....	2	Private International Law.....	2
Trial Practice.....	3	Code Review: Political Law.....	3
Review in Land Registration and Mortgages.....	2	Code Review: Crimes.....	1
Practice Court.....	-----	Legal Ethics.....	1
Junior Philippine Senate.....	-----	Practice Court.....	-----
Total.....	12	Junior Philippine Senate.....	-----
		Total.....	15

There is thus required for graduation the completion of 112 units, 107 as given above, and 5 units granted for the practice court, briefs, reading courses, and other required work.

## POST-GRADUATE REVIEW COURSE

Professor ESPIRITU, *Director*

A review course, open to graduates of the College of Law; to graduates of law schools, members of the Association of American Law Schools; and to graduates of a law school or a university in the Philippines, recognized and approved by the Secretary of Public Instruction, the applicant being otherwise qualified for admission to the bar examination, and able to satisfy the Director that he possesses sufficient knowledge of English to take the work to advantage, will as usual be given this year. Its purpose is to prepare candidates for the bar examination; consequently, there will be a general review of the subjects required for the bar examination, including consideration of the previous questions. The course will begin on May 1, 1926, and extend to about the 1st of September. The fees are ₱40 for each student, payable in advance. The Director will be in the office of the Dean of the College of Law in University Hall on May 1, 1926, to confer with and register students.

**OUTLINE OF POST-GRADUATE REVIEW COURSES****MAY-JUNE****1. MERCANTILE LAW.**

Four hours a week, Professor ESPIRITU.

**2. CIVIL PROCEDURE.**

Five hours a week, Professor DE JOYA.

**3. PRIVATE INTERNATIONAL LAW.**

Two hours a week, Professor SANTOS.

**4. POLITICAL LAW.**

Six hours a week for one month, Professor NOBLE.

**JULY-AUGUST 14****1. CIVIL LAW.**

Six hours a week, Dean BOCOBO.

**2. CRIMINAL PROCEDURE.**

Two hours a week, Professor GUEVARA.

**3. CRIMES.**

Five hours a week, Professor DE JOYA.

**AFTER SECOND EXERCISE***Practical exercises.*—Two hours to be announced in time, Professor GAMBOA.**GRADUATE COURSE**

A graduate course leading to the degree of Master of Laws is given, beginning with the academic year 1917-18.

*Admission.*—The following persons may be admitted thereto:

(1) Those who have received the degree of Bachelor of Laws from the University of the Philippines, or

(2) Those who have received the degree of Bachelor of Laws, or an equivalent degree, from a law school which is a member of the Association of American Law Schools, or from any law school of similar recognized standing, and who, on the date of enrollment, fulfill the entrance requirements in the College of Law, University of the Philippines.

*Requirements for Graduation.*—At least one year's residence and the satisfactory completion of a course of legal study amounting to 20 units, approved by the Dean of the College of Law, and the preparation of a thesis are prerequisites to recommendation for the degree. Every candidate must obtain a general average (on the basis of hours of credit) of  $2\frac{1}{2}$ . The thesis must be of marked excellence, at least 4,000 words in length, and must be a contribution to legal scholarship.

*Fees.*—The fees are ₱50 a semester payable in advance.

**GRADUATE SEMESTRAL COURSES**

**COMPARATIVE LAW** (European).—A brief study of the important events which led to the codification of the laws of Continental Europe; followed by a comparative and analytical study of the provisions of some of these codes. Explanatory lectures and original research work by the students.

Textbooks: A General Survey, Continental Legal Series; German Civil Code; French Civil Code; Argentine Civil Code; Japanese Civil Code; Brazilian Civil Code.

Reference book: Schuster, Principles of German Civil Law.

2 hours a week (Class); first semester; credit 2 units.

Professor ESPIRITU.

*EVOLUTION OF THE MODERN CIVIL LAW.*—Traces its beginnings in the blending of native, Teutonic, or Gothic law with the Roman survivals; the revival of Roman Law in Italy and the influence of the Canon Law; the "reception" of Roman Law in the adjacent countries—Spain, France, Germany, Switzerland, Holland; the expansion of the Civil Law through the growth of colonial systems, especially those of Spain, France, and Holland; the Codification movements; the rebirth of the Civil Law through the Napoleonic legislation; the Common Law's indebtedness to Rome.

Syllabi, lectures, and directions for original research.

1 hour a week (Class); first semester, credit 1 unit.

Professor ROMUALDEZ.

*JURISPRUDENCE.*—A study of the nature of law, the scope of effective legal action in adjusting human relations and regulating human acts, the modes of effective law making, and the application and enforcement of law.

Textbooks: Salmon's Jurisprudence and Holland's Elements of Jurisprudence. Special readings will be assigned.

2 hours a week (Class); first semester, credit 2 units.

Professor NOBLE.

*LAW REFORM.*—A thorough and intensive study of how the laws in force in the Philippine Islands may be changed to meet actual conditions. Definite reforms are proposed and fully discussed. Seminary work, lectures, recitations.

2 hours a week (Class); first semester, credit 2 units.

Dean BOCOBO and Professors SANTOS, LAUREL, DE JOYA, and ESPIRITU.

*TAXATION.*—Based on portions of Acts of Congress and the Administrative Code.

Textbook: Goodnow's Cases on Taxation.

1 hour a week (Class); first semester, credit 1 unit.

Professor GANA.

*THEORY AND PRACTICE OF LEGISLATION.*—A study of the methods of procedure of legislative bodies, with special reference to the methods of the Philippine Congress. Mechanics of bill drafting.

2 hours a week (Class); first semester, credit 2 units.

Dean KALAW.

*COMPARATIVE LAW (Latin-American).*—Continuation of the course of the first semester.

Textbook: Argentine Civil Code, Civil Code of Chile.

Reference book: Giron, *Instituciones Políticas y Jurídicas de los Pueblos Modernos*.

2 hours a week (Class); second semester, credit 2 units.  
Professor ESPIRITU.

**CONTEMPORARY LEGAL PROBLEMS.**—Study of some fundamental legal problems of present-day interest. Special readings will be assigned.

2 hours a week (Class); second semester, credit 2 units.  
Dean BOCOBO and Professors DE JOYA, LAUREL, and ESPIRITU.

**CRIMINOLOGY AND PENOLOGY.**—This is a seminary course, and the work includes the preparation, discussion, and criticism of papers dealing with the causes of crimes, prevention of crimes, reformation of criminals, and the different penitentiary systems.

Reference book: The Modern Criminal Science Series.

1 hour a week (Class); second semester, credit 1 unit.  
Professor VILLA-REAL.

**LEGAL HISTORY, BIOGRAPHY, AND LITERATURE.**—A general survey of the events, persons, periods, and movements in the development of the laws of the peoples of the earth; the aims of the Historical School; accepted codes of moral, "natural," civil, and criminal law; the relation of the Civil Law and the Common Law; the great jurists of the world; legal masterpieces; the English, American, and Spanish bars.

References: Allen, *The Evolution of Governments and Laws: A general Survey* (Continental Legal History Series); MacDonald and Manson, *Great Jurists of the World*; Veeder, *Legal Masterpieces*; and others.

2 hours a week (Class); second semester, credit 2 units.  
Professor NOBLE.

**LEGAL PHILOSOPHY.**—The legal philosophies of the world; development of the legal philosophy; the Neo-Kantian, Neo-Hegelian, and Positivist schools; evolution of ideas of law and the State; recent surveys of fundamental problems of law and punishment; relation of authority of the State to individual freedom of activity.

References: Berrolzheimer, *The World's Legal Philosophers*; Gareis, *Science of Law*; Pound, *Readings on the History and System of the Law*; *Modern French Philosophy* by Foulee, Charmont, Duguit, and Demogue; Tarde, *Penal Philosophy*; Lombroso and De Quiros, *Modern Theories of Crime and Criminology* and current writers of the Day.

1 hour a week (Class); second semester, credit 2 units.  
Professor NOBLE.

**STATUTORY CONSTRUCTION.**—A study of Philippine Statutory Construction, including an analysis of the provisions of Articles 3, 5, 7 of the Civil Code; sections 1-4, 286-94 of Act No. 190; sections 2-15 of the New Administrative Code, and assigned cases from Philippine and American Reports.

Reference books: Malcolm, *Philippine Government*; Black, *Interpretation of Laws*.

1 hour a week (Class); second semester, credit 1 unit.  
Professor JOHNSON.

*First Semester*

	Units
Comparative Law (European).....	2
Evolution of Modern Civil Law.....	1
Jurisprudence .....	2
Law Reform.....	2
Taxation .....	1
Theory and Practice of Legislation.....	2
 Total .....	 10

*Second Semester*

	Units
Comparative Law (Latin-American).....	2
Contemporary Legal Problems.....	2
Legal History .....	2
Legal Philosophy.....	2
Penology and Criminology.....	1
Statutory Construction.....	1
Thesis .....	.....
 Total .....	 10

**COMBINED CURRICULUM IN LAW AND POLITICAL SCIENCE**

Beginning with the academic year 1918-19, a combined course leading to the degree of LL.B. and B.S. in Government has been offered. The requirements for admission are the same as those prescribed for the regular law course. The student enrolled will be under the College of Liberal Arts, in so far as subjects given in that college are concerned; as to all his other subjects, he will be under the jurisdiction of the College of Law.

(Those marked (x) are given under the Political Science Department, College of Liberal Arts.)

**FIRST YEAR**

<i>First Semester</i>		<i>Second Semester</i>	
	Units		Units
Elementary Law.....	2	Obligations.....	6
Institutes of Civil Law.....	4	English Literature.....	x3
Persons.....	3	Public Speaking.....	2
English Literature.....	x3	European Government.....	x3
Reading Course I.....	.....	Reading Course II.....	.....
Junior House of Representatives <sup>1</sup> .....	.....	Junior House of Representatives <sup>1</sup> .....	.....
Total.....	9or12	Total.....	8or14

<sup>1</sup> For students holding the associate title, General Course. This subject is included in the preparatory law course.

## SECOND YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Philippine Government -----	3	Mercantile Law -----	4
Property -----	4	Criminal Law -----	5
Elementary Procedure -----	2	Criminal Procedure -----	2
Oratory -----	2	Administrative Law -----	2
Oriental History <sup>2</sup> -----	x 3	General Anthropology -----	x 3
Reading Course III -----		Reading Course IV -----	
Junior House of Representatives <sup>1</sup> -----		Junior House of Representatives -----	
Philippine Barristers I -----		Philippine Barristers II -----	

Total ..... 14 or 11 Total ..... 16 or 13

## THIRD YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Agency -----	2	Bailments -----	2
Civil Procedure -----	5	Evidence -----	4
Private Corporations -----	2	Private Corporations -----	2
Political Parties -----	x 3	Sales -----	2
Philippine Barristers III -----		Social Ethics -----	x 3
Reading Course V -----		Economic Development of the P. I. -----	x 3
Practice Clubs I -----		Philippine Barristers IV -----	
Total ..... 9 or 12		Reading Course VI -----	
		Practice Clubs II -----	

Total ..... 10 or 16

## FOURTH YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Land Registration a Mortgagess -----	4	Torts and Damages -----	3
Public International Law -----	2	Legal Ethics -----	1
Admiralty -----	1	Constitutional Law -----	3
Partnership -----	2	Wills, Descent, and Administration -----	3
Municipal Government -----	x 2	Taxation -----	1
Mining and Irrigation Law -----	1	Diplomacy -----	x 3
Bankruptcy and Insolvency -----	1	Insurance -----	1
Total ..... 11 or 13		Total ..... 12 or 15	

<sup>1</sup> For students holding the associate title, General Course. This subject is included in the preparatory law course.

<sup>2</sup> Every student must take this subject or General Anthropology.

## FIFTH YEAR

<i>First Semester</i>	<i>Units</i>	<i>Second Semester</i>	<i>Units</i>
Trial Practice -----	3	Code Review: Crimes -----	1
Conveyancing -----	2	Code Review: Civil Law -----	3
Legal Medicine -----	2	Code Review: Mercantile Law -----	3
Public Corporations -----	2	Code Review: Remedial Law -----	2
Theory and Practice of Legislation -----	x 2	Private International Law -----	2
Brief -----		Public Finance -----	x 3
Practice Court -----		Brief -----	
Junior Philippine Senate -----		Practice Court -----	
Code Review: Criminal Procedure -----	1	Junior Philippine Senate -----	
Total ..... 10 or 12		Thesis, Law -----	
		Thesis, Political Science -----	x 0
		Code Review: Political Law -----	2

Total ..... 13 or 16

NOTE.—The regular course in B.S. in Government is finished in two years (after the Associate title) with 66 units, 20 of which are given

in the College of Law and 46 in the College of Liberal Arts. In the combined course, the student must obtain *all* the units (112) required for LL.B. and, in addition, 31 units in the College of Liberal Arts. He is thus exempted from 15 units in the College of Liberal Arts but the College of Law does not excuse him from any subject.

#### VOCATIONAL COURSES

*COMMERCIAL LAW*.—A special course for students taking the course in Commerce, covering the principles and elements of contracts, agency, partnership, corporations, sale and delivery, negotiable instruments and other subject matter of commercial practice and modern business organization.

Textbooks: Huffcut-Bogert, Elements of Business Law; Commercial Code; Corporation Law.

2 hours a week (Class); second semester, credit 2 units.

*ENGINEERING LAW*.—Two courses are offered to students of the College of Engineering and others who need special instruction in engineering and architectural law.

One course in Elementary Law, designed to give a satisfactory and systematic understanding of legal terms, rights, and remedies, is given during the first semester. Outlines, principles, and recitations.

Textbook: Elementary Law (Smith).

2 hours a week (Class); first semester, credit 2 units.

In the second semester a course is given in the Law of Contracts, including a study of principles, forms, and essentials; the law of bidding and letting; the law of employment; main features of statutes of the Philippine Islands modifying the obligations of contracts. This course is designed to furnish an appreciation of business relations and principles, and a due sense of the duties and liabilities of engineers, surveyors, and architects.

Textbook: Wat, Law of Contracts for Technical Schools of Engineering and Architecture.

2 hours a week (Class); credit 2 units.

*JOURNALISM*.—Lectures on the Law of Libel to students taking the course in Journalism for proper understanding of the rights and liabilities of authors, editors, reporters, and proprietors of newspapers and other publications.

1 hour a week (Class); credit 1 unit.

#### SUMMARY OF ATTENDANCE

	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26
Graduate course.....	4	2			3	3	7	8
Review course.....	30	26	30	26	42	42	52	
Fourth-year class.....	32	39	39	27	44	45	42	32
Third-year class.....	32	39	39	45	43	41	30	22
Second-year class.....	55	43	55	51	42	30	25	40
First-year class.....	54	78	61	51	41	36	44	90
Special students.....	5	5	11	7	2	1	2	
Students of the other colleges taking work in the College of Law..	6	12	13	6			1	
Total attendance.....	218	244	248	213	217	201	203	
Duplications.....	3	5	11	7				
Net attendance...	215	239	237	206				

# The College of Medicine

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## ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College:* Dr. FERNANDO CALDERON

*Chief of Clinics:* Dr. JOSE ALBERT

*Directors—*

*School of Pharmacy:* Dr. MARIANO V. DEL ROSARIO

*School of Dentistry:* Dr. DOMICIANO J. SANDOVAL

*Secretary of the College:* Dr. DANIEL DE LA PAZ

*Heads of Departments in Medicine:*

*Anatomy* (Tel. 2040, Local 6): Dr. ARTURO GARCIA

*Gynecology* (Tel. 1380, Local 17): Dr. FERNANDO CALDERON

*Hygiene* (Tel. 2040, Local 9): Dr. HILARIO LARA

*Legal Medicine* (Tel. 2040, Local 10): Dr. SIXTO DE LOS ANGELES

*Medicine* (Tel. 1380, Local 44): Dr. ARISTON BAUTISTA

*Obstetrics* (Tel. 1380, Local 50): Dr. BALDOMERO ROXAS

*Ophthalmology and Otolaryngology* (Tel. 1380, Local 4): Dr. ARISTEO R. UBALDO

*Parasitology and Tropical Medicine* (Tel. 2040, Local 12): Dr. LUIS GUERRERO

*Pathology and Bacteriology* (Tel. 2040, Local 4): Dr. MARIA PAZ MENDOZA-GUAZON (Acting)

*Pediatrics* (Tel. 1380, Local 2): Dr. JOSE ALBERT

*Pharmacology* (Tel. 2040, Local 2): Dr. DANIEL DE LA PAZ

*Physiology* (Tel. 2040, Local 1): Dr. ISABELO CONCEPCION (Acting)

*Surgery* (Tel. 1380, Local 36): Dr. JOSE EDUQUE

## CHIEF CLERKS

*Chief Clerk and Superintendent of City Morgue:* Mr. PEDRO M. CHANCO

*Property Clerk:* Mr. MAURO YABUT

## CHAIRMEN OF STANDING COMMITTEES

*College of Medicine:*

*Admission:* Dr. DANIEL DE LA PAZ; Tel. 2040, Local No. 6

*Standing and Promotion:*

For first and second year students: Dr. ARTURO GARCIA; Tel. 2040, Local 6

For third, fourth, and fifth year students: Dr. JOSE EDUQUE; Tel. 1380, Local 36

*Catalogue and Curriculum:* Dr. ANTONIO G. SISON; Tel. 1380, Local 44

*Library:* Dr. JOSE ALBERT; Tel. 1380, Local 35

**BUSINESS DIRECTORY**

**OFFICE OF THE DEAN:** The office of the Dean is located in Room No. 1 on the first floor of the College building on 547 Calle Herran, Ermita. Office hours by appointment.

**TELEPHONE CONNECTIONS:** The Dean's office may be reached from outside by Tel. 2040. It also has No. 3 on the local exchange.

The Laboratory Departments are on the local exchange and may be reached only during business hours; 8-12 and 1-4. From outside call Tel. 2040 (the College number) and ask for department wanted or give local number shown above. The Clinical Departments are on the local exchange of the Philippine General Hospital. From outside call Tel. 1380 (the Hospital number) and ask for department wanted or give local number shown above.

**CORRESPONDENCE:** Address all correspondence to the Dean, College of Medicine, University of the Philippines, Manila, P. I.

## THE FACULTY OF INSTRUCTION

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**FERNANDO CALDERON, A.B., M.D.,**

Dean of the College, and Professor and Head of the Department of Gynecology.

**JOSE ALBERT, A.B., L.M.S., M.D.,**

Professor and Head of the Department of Pediatrics.

**SIXTO DE LOS ANGELES, A.B., L.M.,**

Professor and Head of the Department of Legal Medicine, Medical Economics, and Ethics.

**ARISTON BAUTISTA, M.D.,**

Professor and Head of the Department of Medicine.

**JOSE EDUQUE, M.D.,**

Professor and Head of the Department of Surgery.

**ARTURO GARCIA, A.B., M.D.,**

Professor and Head of the Department of Anatomy.

**LIBORIO GOMEZ, M.D., Ph.D.,**

Professor and Acting Head of the Department of Pathology and Bacteriology.

**LUIS GUERRERO, A.B., M.D.,**

Professor and Head of the Department of Tropical Medicine and Parasitology.

**DANIEL DE LA PAZ, M.D.,**

Professor and Head of the Department of Pharmacology.

**BALDOMERO ROXAS, A.B., M.D.,**

Professor and Head of the Department of Obstetrics.

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Associate Professor of Obstetrics.

**EMILIO BULATAO, M.D.,**

Associate Professor of Physiology.

**ISABELO CONCEPCION, M.D.,**

Associate Professor and Acting Head of the Department of Physiology.

**FAUSTINO GARCIA, M.D.,**

Associate Professor of Pharmacology.

**PERPETUO GUTIERREZ, M.D.,**

Associate Professor of Dermatology and Syphilology.

**HILARIO LARA, M.D., C.P.H., D.P.H.,**

Associate Professor and Head of the Department of Hygiene.

**LAMBERTO LEIVA, M.D., D.T.M.,**

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**WALFRIDO DE LEON, A.B., M.D., D.T.M.,**

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**MARCIANO LIMSON, M.D.,**

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Instructor in Biochemistry.

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Professorial Lecturer on Infectious Diseases.

**GABRIEL BERNARDO,**

Lecturer on Library Methods.

# THE COLLEGE OF MEDICINE<sup>1</sup>

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## HISTORICAL SKETCH

The College of Medicine is an outgrowth of the educational system instituted throughout these Islands by the Philippine Commission, and it is also a natural development of the Bureau of Science and the Bureau of Health.

The movement looking toward the establishment of such a school had its origin at the Second Annual Meeting of the Philippine Islands Medical Association in 1905, at which meeting the proceedings demonstrated the great need of supplying physicians to the people of these Islands. Statistics showed that there was one physician to each 21,209 of the population of the Archipelago, or to each 430 square miles of territory.

The Philippine Medical School was established by the Philippine Commission as the first department of the future University of the Philippines and was opened for the instruction of students June 10, 1907.

The Philippine Medical School was founded in accordance with the following Act:

**Act No. 1415.—An Act establishing a Medical School and defining the manner in which it shall be controlled and conducted.**

*By authority of the United States, be it enacted by the Philippine Commission, that:*

SECTION 1. There is hereby established in the City of Manila a medical school for the purpose of giving instruction to qualified students. It shall be known as the Philippine Medical School.

The school is hereby made a body corporate, but shall be reincorporated under the new corporation law as soon as the same is enacted.

SEC. 2. The powers of the corporation until reincorporated as above provided are hereby vested in a body to be known as "the board of control of the Philippine Medical School" which shall consist of the Secretary of Public Instruction, the Secretary of the Interior, one member of the Philippine Commission, and one other member to be designated by the Governor-General. The Dean of the faculty of the school, after the establishment of said faculty, also shall be a member of the board of control.

SEC. 3. The board of control shall have the following powers:

(a) To receive endowments and bequests and to provide for their investment and disbursement according to the conditions of the endowment or bequest.

(b) To fix the matriculation fee, the graduation fee, and fees for laboratory courses.

(c) To receive and appropriate for the ends specified by law such sums as may be provided for the support of the school by legislation of the Philippine Commission.

(d) To recommend to the Governor-General, for appointment, the faculty of the school and fix the duties and responsibilities of its members, subject to the provisions of this Act.

(e) To confer the degree of Doctor of Medicine upon such persons as are recommended by the faculty.

(f) To make to the Philippine Commission recommendations in regard to the school and to present estimates of appropriations necessary for its maintenance.

(g) To make all necessary by-laws.

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<sup>1</sup> The authorities reserve the right of addition to, subtraction from, and modification of the announcements of this catalogue as they may deem necessary for the best interest of the school and students.

SEC. 4. Upon request of the board of control, heads of Bureaus and Offices of the Insular Government are authorized to loan such apparatus and supplies as may be required and to detail employees for duty in the Medical School, and employees so designated shall perform such duty and the time so employed shall count as part of their prescribed service to the Government. Bureaus and Offices loaning supplies to the Medical School shall, if the same are expended by the school, be reimbursed from the appropriation against which the expenses of the Medical School are a proper charge.

SEC. 5. The public good requiring the speedy enactment of this bill, the passage of the same is hereby expedited in accordance with section two of "An Act prescribing the order of procedure by the Commission in the enactment of laws," passed September twenty-sixth, nineteen hundred.

This Act shall take effect on its passage.

Enacted, December 1, 1905.

The Philippine Medical School became a college of the University of the Philippines, and its name was changed to the "College of Medicine and Surgery," by section 6, paragraph (b), of Act No. 1870, which, as amended by Act No. 2024, reads as follows:

To provide for the establishment of a College of Liberal Arts; a College of Law; a College of Social and Political Science; a College of Medicine and Surgery; a College of Pharmacy; a College of Dentistry; a College of Veterinary Science; a College of Engineering; a College of Mines; a College of Agriculture; and a School of Fine Arts; and colleges which the Legislature may provide for by appropriation: *Provided*, That the Board of Regents may establish these colleges or any of them as soon as in its judgment conditions shall favor their opening and funds shall be available for their maintenance: *And provided, further*, That the Board of Regents, by and with the approval of the Governor-General, shall have the power to combine two or more of the colleges authorized by this Act, in the interests of economy and efficiency: *And provided, further*, That the Philippine Medical School, as established by Act Numbered Fourteen hundred and fifteen, as amended, shall become the College of Medicine and Surgery of the Philippine University as soon as two or more colleges of the University of the Philippines shall have been established and in actual operation.

On December 8, 1910, the provisions of Act No. 1870 having been complied with, the control and management of the school passed to the Board of Regents, and in accordance with said Act the name was changed to "College of Medicine and Surgery" which on March 1, 1923, was changed to "College of Medicine."

## THE HOSPITAL AND COLLEGE BUILDINGS

In the year 1908 the Philippine Commission appropriated the sum of ₱780,000 for the construction of a modern hospital of reinforced concrete, planned on the pavilion system, to accommodate 350 patients. Additional wards can be added in the future, the final capacity being 1,500 patients. This institution, known as the Philippine General Hospital, was opened to the public on September 1, 1910.

The Philippine Legislature appropriated during the period from 1916 to 1921 the sum of ₱1,187,000 with which to further the building program of the Philippine General Hospital. With that appropriation the dispensary building was enlarged to house the laboratories of the School of Pharmacy on the second floor, and one additional nurses' home and a new obstetrical pavilion, containing a small amphitheater, were constructed. In addition ten other buildings are still to be constructed in accordance with the original plan.

At the time of providing for the hospital the Philippine Commission set aside the sum of ₱250,000 for a Medical School Building, to be erected on the same campus as the Bureau of Science and the hospital. This building was completed and opened for class work and instruction on

July 1, 1910. It is a modern reinforced concrete structure with a total frontage of 68.54 meters, embracing a main entrance flanked by general offices and faculty room, of 18.40 meters width, and two wings of 25.07 meters each. The two wings are 15 meters deep.

In one wing on the first floor is the general laboratory of bacteriology and pathology, laboratories for the staff, and the private laboratory of the chief of the department. The other first floor wing is occupied by the laboratories of hygiene, legal medicine, parasitology, and tropical medicine, and the pathological museums.

In one wing of the second floor are located the laboratory of histology and embryology, the anatomical library and museums, and the private laboratory of the chief of the department of anatomy. In the other wing is the general laboratory of physiology and biochemistry, an operating room for animals, and the private laboratory of the chief of the department.

The main building, or center, is 18.40 meters wide by 50 meters deep. On the ground floor are the general office, main corridor or lobby, store-room, autopsy room, and cold storage room for bodies. On the second floor are the laboratory of pharmacology, two general lecture rooms, and an amphitheater equipped with a reflectoscope. Each lecture room has a seating capacity of about sixty students; that of the amphitheater is about one hundred and twenty. The third floor of the building is given over to the department of anatomy. It is divided into four dissection rooms, a preparation room, and a private laboratory. All these floors are equipped with modern wash and toilet rooms.

The city morgue is located in the College of Medicine building. All autopsies are performed by the department of pathology, and the material is available for study by the students.

Animal houses are located on the same campus at the College of Medicine. One new separate pavilion with all modern facilities has just been completed for the course in animal and experimental surgery.

### CLINICAL FACILITIES

The services for the teaching of clinical medicine and surgery consist in the control of the free beds in the Philippine General Hospital and of the clinical material of its Free Dispensary. Clinical instruction in dangerous communicable diseases is given at the Hospital for Infectious Diseases at San Lazaro, with its departments for incurable tuberculosis, smallpox, diphtheria, plague, cholera, and other dangerous communicable diseases. The Gota de Leche for the feeding and care of abnormal and under-developed children, the Free Dispensary of the Philippine General Hospital, and Tuberculosis Free Dispensaries of the City of Manila are available for teaching purposes.

The Philippine General Hospital is a large, modern, concrete, well-equipped pavilion hospital of about 603 beds for the care of acute and curable diseases. The Dean of the College of Medicine is Director of the Philippine General Hospital. The Assistant Director of the Hospital is a member of the faculty. The Philippine General Hospital has its own appropriation which is solely under the control of the Director of the institution. The personnel and departments in the College and Hospital are practically identical. All officers and teachers of the College of Medicine who have duties in connection with the Hospital hold corresponding appointments in the Hospital. All officers and employees of the Hospital,

who have teaching functions, hold corresponding appointments in the College of Medicine. Thus the Philippine General Hospital and the College of Medicine are practically one institution.

The large number of patients visiting the various departments of the Free Dispensary of the Philippine General Hospital has offered excellent opportunity for dispensary teaching and also for supplying the hospital with clinical material for teaching. During the year 1925, there were 51,514 patients making 125,447 visits of which the various departments shared as follows: medicine, 19,387; surgery, 47,761; skin, 2,272; obstetrics, 1,003; eye, ear, nose, and throat, 29,628; urology, 1,817; dental, 13,373; gynecology, 2,676; pediatrics, 7,085; neurology, 36; and tuberculosis, 409.

Taken altogether, the college has under its control more valuable clinical material, covering the widest possible range of disease conditions, than it can possibly use to the best advantage of the students.

### LIBRARY FACILITIES

The library of the Bureau of Science is open to the students of the College of Medicine. This library, consisting of more than 54,000 bound volumes and more than 46,000 pamphlets, is particularly rich in literature on medicine and the allied sciences, and includes complete files of the more important medical journals and society publications. The library contains sets, complete to date, of all series of Index Medicus and of the Index Catalogue of the United States Surgeon-General's Office.

### MICROSCOPES AND LABORATORY APPARATUS

The college is equipped with a sufficient supply of microscopes and other clinical and laboratory apparatus for the use of the students.

Owing to the constant use that is made of microscopes during the laboratory courses and in clinical studies, each student must have a microscope for his own use, and it is recommended that he purchase one. Otherwise the students may obtain microscopes upon a memorandum-receipt from the college. The microscopes must be returned in good condition, or charges for repairs will be made against the students.

### DEPOSITS

Each student must deposit ₱20 before beginning any laboratory course. The cost of all apparatus and special supplies issued to the student will be charged against this deposit.

Further deposits will be required, if needed, to cover the cost of supplies issued to the student. The student will be credited at the end of the course for the apparatus and supplies returned to the property clerk in good condition.

### FEES

The tuition fee in the College of Medicine for the courses leading to the degree of Doctor of Medicine is ₱25 per semester.

A laboratory fee of ₱5 per semester will be charged in those laboratory courses of not more than nine hours a week; ₱10 will be charged for laboratory courses of more than nine hours a week.

Every student will pay an athletic fee of ₱1.50 per semester, which will be turned in to the Treasury of the Athletic Association.

For fees in the School of Dentistry, see page 309 and for the School of Pharmacy, page 328.

## ADMISSION REQUIREMENTS

The requirement for admission to the College of Medicine for the degree of Doctor of Medicine is the satisfactory completion of a standard four-year high school course, or its equivalent, and at least sixty-semester hours of collegiate work, which must include the following:

1. *ENGLISH COMPOSITION AND LITERATURE*.—The usual introductory college course of six-semester hours, or its equivalent is required.

2. *GERMAN OR FRENCH*.—A reading knowledge of either one of these languages is required. The ground covered in collegiate courses of at least twelve-semester hours represents the training considered necessary to meet this requirement.

3. *PHYSICS*.—Eight-semester hours are required, of which at least two must be laboratory work.

4. *CHEMISTRY*.—Twelve semester hours are required, of which at least eight-semester hours must be in general inorganic chemistry, including four-semester hours of laboratory work and four-semester hours in organic chemistry, including two-semester hours of laboratory work. Work in qualitative analysis may be counted as general inorganic chemistry.

5. *BIOLOGY*.—Eight-semester hours are required, of which four must consist of laboratory work. The requirement may be satisfied by a course of eight-semester hours in either general biology or zoölogy, or by courses of four semester hours each in zoölogy and botany, but not by botany alone.

The premedical course in the College of Liberal Arts of the University of the Philippines for students desiring to enter the College of Medicine is as follows:

1. *ENGLISH 1*.—A practical course in writing and speaking. One day a week is devoted to an inductive study of principles and of idioms and to the correction of typical errors; one day to oral or written exposition of impromptu topics; one day to written themes. In addition, reports on six home-reading books are required. Total of 102 class hours for one year.

2. *GERMAN 1*.—One hour three times a week during the first and second semester. Total, 102 hours.

*A first year college course in German*.—Pronunciation, grammar, easy readings, with practice in speaking and writing German.

3. *FRENCH 1*.—Elementary Grammar, composition and practice of easy French conversation. One hour three times a week—First and second semester, 6 units.

4. *ZOOLOGY*.—One hour lecture, one hour recitation, and three laboratory periods (two, each of 2 hours duration and one of 3 hours) per week during the first and second semester. Total, 306 hours.

The first third of the course is devoted to the study of the gross anatomy, histology, physiology, habits and embryology of the frog; the second third, to the study of those lower organisms which are of special interest to students of medicine, stress being laid on experimental methods; the last third, to a careful study of the anatomy of the shark and the cat.

5. *GENERAL INORGANIC CHEMISTRY*.—A course giving the essentials of elementary general inorganic college chemistry. Both the fundamental principles of the subject and the practical applications to the industries and every-day life are emphasized. Two 1-hour lectures, 1 hour

recitation, and three 2-hour laboratory periods during the first and second semester. Total, 306 hours.

6. *COLLEGE ALGEBRA*.—One hour three times a week during either the first or the second semester. Total, 51 hours.

The course includes review in involution and evolution; surds; the theory of exponents and quadratic equations; inequalities; pure, imaginary, and complex numbers; indeterminate linear equations; ratio and proportion; variation; progressions; undetermined coefficients; the binomial theorem for any exponents; logarithms.

7. *PLANE TRIGONOMETRY*.—One hour three times a week during either the first or the second semester. Total, 51 hours.

The course includes development of general formulæ; practical problems; computation methods.

8. *PHYSICS*.—Three 1-hour lectures and three hours laboratory a week during the third and fourth semester. Total, 204 hours.

The course covers the subjects of mechanics, molecular physics, heat, electricity, sound, and light, special attention being given to recent discoveries and developments in physics.

9. *GERMAN 2*.—One hour three times a week during the third and fourth semester. Total, 102 hours.

A preparatory course of the reading of literary and scientific authors.—Class and outside reading of selected texts. Grammar and written exercises continued.

10. *FRENCH 2*.—Advanced Grammar, sight translations, conversation and advanced composition. One hour three times a week—First and second semester, 6 units.

11. *EXPERIMENTAL ORGANIC CHEMISTRY*.—(Chemistry of Carbon Compounds).—An introductory course giving the theoretical principles and practical applications of synthetic organic chemistry. The general relations between the different groups of compounds, the application of general reactions, and the laboratory preparation, and general behavior of compounds characteristic of each group are emphasized. Two 1-hour lectures, one 1-hour recitation, and three 2-hour laboratory periods, during the third and fourth semester. Total, 306 hours.

12. *QUALITATIVE INORGANIC CHEMISTRY*.—A systematic qualitative analysis of basic and acidic constituents of compounds with drill in the analysis of compounds, mixtures, minerals, and alloys ("unknowns"), the composition of which is unknown to the student. Each "unknown" is considered a practical examination. One hour lecture, two 1-hour recitations, and three 2-hour laboratory periods during the third semester. Total, 153 hours.

13. *BOTANY*.—Three 1-hour lectures, and three 2-hour laboratory periods a week during the fourth semester. Total, 153 hours.

The course covers the essentials of elementary botany.

14. *HISTORY*.—Three hours a week during the third and fourth semester. Total, 102 hours.

*THIRD SEMESTER: DEMOCRATIC MOVEMENT IN THE NINETEENTH CENTURY, 1815-1878*.—The Congress of Vienna, the conservative spirit, nationalism and democracy, and the unity of Italy and Germany.

*FOURTH SEMESTER: PHILIPPINE HISTORY*.—From the British occupation to the American occupation. The representation in the Spanish

Cortes, the commercial growth, the reform movement, the propaganda, the Revolution.

The College of Liberal Arts of the University of the Philippines offers courses in French for students whose desire to satisfy the entrance requirement of the College of Medicine in foreign language.

All candidates who desire to enter the College of Medicine must pass a physical examination before being admitted. This examination will be held in the office of the Physical Director, University Campus, Manila, from June 4 to June 16.

The ability to speak and write good English is a necessary qualification for admission to the College of Medicine.

### ADMISSION TO THE FIRST YEAR CLASS

Application for admission to the first-year class of the College of Medicine should be made directly to the Dean of the College at least two weeks before the opening of the first semester. Such applications will be referred, through the Committee on Admissions of the College, to the Faculty of the College of Medicine for definite action and will then be forwarded to the Secretary of the University for registration.

A candidate from another institution should forward with his application an official certificate from the college or university already attended of (1) honorable dismissal (32) time of attendance with the amount of work that he has completed, and (3) a detailed statement of the work which he has completed, including the numerical or other grades attained. Such a certificate should be accompanied by the catalogue or announcement of the institution attended.

### ADMISSION TO ADVANCED STANDING

Applications for admission to advanced standing in the College of Medicine shall be addressed to the Dean and should be accompanied by an official certificate from the college or university already attended. Such applications will be referred to the Committee on Standing and Promotion for investigation and definite action and will then be forwarded to the Secretary of the University for registration.

To enter any course a student must have completed the required courses of study which supply the preliminary preparation for that course. The prerequisite courses will be determined by the heads of departments.

Students who have taken, in colleges of liberal arts recognized by this University, courses fully equivalent to the similar courses offered in this College of Medicine and produce certificates of this fact, need not repeat such courses here. But credits allowed for such work do not entitle the student to advanced time standing.

Students from accredited colleges of medicine may be admitted to advanced standing under the following rules:

(a) They must present evidence that they have met in some other college the equivalent of the requirements for admission to this college and they must have completed satisfactorily all courses of the same scope and extent as the courses for which they seek credit in this college.

(b) They must present credentials from the registrar or corresponding officer of the College of Medicine from which they come, showing that they have been registered medical students in residence for the time for which time credit is sought.

(c) In order to obtain credit for a whole or any part of a course, the student must file with the Dean, before the opening of the college year, an application in duplicate, showing where the work was done, the names of the professors, dates of the beginning and the end of the course, the number of hours per week and weeks in the course, the total number of lectures or recitations, or laboratory or clinical work, and the grades received. This application should be accompanied by certificates, supporting the above facts, from the registrar of the college or the professor under whom the work was done, by the catalogue or schedule of the institution, and by the notebooks of the students in laboratory courses. In the absence of satisfactory certificate, an examination may be required covering the whole or any necessary part of the subject. This application, with its supporting evidence, is submitted to the professors of the affected departments of this college, who decide what credits are recommended. Such recommendation must then be approved by the Committee on Standing and Promotion and returned to the Dean, in duplicate. One copy is filed and the other returned to the student.

(d) Any course or part of a course required by this College which has not been sufficiently covered by the previous work of the student, must be taken in a manner satisfactory to the professors in charge of the department affected.

A graduate from an approved college of medicine may obtain a diploma from this college under the following conditions only:

(a) He must comply with the requirements for admission to this college, submit full data as outlined above, Rule (c), of the preceding paragraph.

(b) He must remain in residence at this college one college year, taking all such courses as are not covered by the subject credits and repeating such courses as the faculty may require. After these demands are satisfied he may elect such additional course as he chooses.

(c) The total of all work taken in this college must not be less than that required of the fifth year class.

(d) He must pass examination in all courses in which he was found deficient and he must conform to all other requirements for graduation exacted of the regular students of this college.

### SPECIAL STUDENTS

Persons of requisite age may be admitted to courses in the College of Medicine as special students not candidates for a degree by the faculty of the College of Medicine. Such applicants must be recommended by the College Committee on admissions and by the chief of the department, in which they desire to take a large part of their work, to the faculty of the College of Medicine.

### GRADUATE STUDENTS

Candidates for the degree of Master of Science may take their major subjects in the College of Medicine.

### ATTENDANCE

Students must be in actual attendance in the College within the first week of each annual session and thereafter, except in exceptional cases to

be dealt with by the Dean on recommendation of the Committee on Standing and Promotion.

Leave to be absent or an excuse for absence does not, in any case, absolve the student from doing the work covered by his class during his absence, to the satisfaction of the instructor in charge.

Students who discontinue any of their work without formal leave of absence do so at the risk of having their registration privileges curtailed or entirely withdrawn.

### EXAMINATIONS

Examinations will be held at the end of each semester, upon the completion of each subject, and at such other times as the instructor in charge of a course may elect.

For the removal of conditions, students shall have the privilege of taking one examination during the week preceding the opening of the following session or any other examination required by the faculty without the payment of a fee. Examinations may be held at other times only by special permission of the faculty and on payment of P10, provided that all conditions must be made up before the opening of the following session. Only students who are in residence will be allowed to take examination for removal of conditions.

Students who have been absent from the semester examination may, at the discretion of the Dean and the heads of the departments concerned, be admitted to subsequent examination in such work, but will be required to pay the fee for special examination.

### PROMOTIONS, CONDITIONS, FAILURES, AND WITHDRAWALS OF STUDENTS

1. The satisfactory completion of a course shall be determined by the professor in charge, through records of attendance, daily work of the student, examinations and other tests as he may employ. To pass in a course the student must satisfy the legal minimum of (a) attendance of at least 80 per cent, of the scheduled lectures, recitations, quizzes, laboratory periods, and clinical or other appointments in the course; and (b) at least a grade of 3.

2. A regularly enrolled medical student, who has not received a condition or failure in any of the objects of the prescribed course taken during the academic year, or who has removed all conditions before the beginning of the following academic year, will be advanced to and enrolled in the next higher class.

3. (a) Failure to the extent of 100 hours may be carried from one year to the next higher year until the fourth year. No failures may be carried into the fifth year.

(b) Students shall be permitted to take work in the next succeeding year or in the year to which they are promoted provided such subjects are not in conflict in prerequisites with the subject in which they are deficient, and provided that the number of hours of such work allowed shall not exceed the number of hours of work completed during the previous year.

Decision in such cases shall be made by the respective committee on standing and promotion.

4. A grade of "4" shall indicate that the student receiving such grade is conditioned in the subjects in which the mark was received. He may be given a reëxamination in the subject matter of the course, or be required to do additional work or both, at the discretion of the instructor in charge.

5. The grade of "3" is the highest mark which any student may receive as the result of reëxamination for the removal of condition.

6. If the course in which the student is conditioned be a continuous one, the instructor in charge may, at his discretion, excuse the student from reëxamination and allow him to obtain credit by passing his course successfully during the following semester. If such a student fails in the work of last semester, he shall be regarded as having failed in the work of the two semesters.

7. Unexcused absence from a regular examination is construed as a failure therein.

8. The failure to obtain university credit in a subject in which a grade of "4" has been received, before the beginning of the next academic year, shall mean that the grade of "4" has become a grade of "5," except when due to prolonged and serious illness or unavoidable detention, to be determined by the Dean, and except in cases governed by other rules. In the former case, the student shall have the privilege of taking the examination for the removal of condition.

9. A grade of "5" shall indicate that the student receiving such a grade has failed in the subject in which the grade was received. Further, that he will not be entitled to reëxamination until he repeats the subject in which he has failed during the period which the instructor in charge may recommend.

10. Students who, in any semester, make a consistently poor record in a majority of subjects having for example an average of "4," or who at the end of the first or second year have recorded against them failures in any two of the subjects: gross anatomy, biochemistry, physiology, pharmacology, pathology or bacteriology will be strongly urged to leave the College.

11. Any student may be required to withdraw from the College at any time whenever in the opinion of the faculty it is manifest that he is incompetent for his work, or for any reason he is unfit to continue his course.

## REQUIREMENTS FOR GRADUATION

At the end of his medical studies, a student who has passed all of the required examinations satisfactorily will receive the degree of Doctor of Medicine under the following conditions:

1. He must be twenty-one years of age and of a reputable character.

2. He must have satisfied all the requirements for admission to this college and completed as a regularly matriculated medical student a five-year's course of medical study equivalent in its standard to that given here. The last three years must be spent in this college, unless permission for a different arrangement has been obtained from the faculty.

3. His graduation must then be recommended by the University Council and approved by the Board of Regents.

## GRADUATION WITH HONORS

The degree of Doctor of Medicine "with honors" shall be granted to students in the regular course who have obtained a grade of 2 or better

in all subjects taken during five years' residence in the College. The degree of Doctor of Medicine "with highest honors" shall be granted to students in the regular course who have obtained a grade of 1 in not less than 75 per cent of all subjects taken during five years' residence in the College, and a grade of 2 in all other subjects. This is equivalent to an average of 1.25 or better.

## MILITARY AND PHYSICAL INSTRUCTION

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

Beginning with July 1, 1921, one hour a week of physical training in addition to military drill will be required of all students during their first four years of residence in the University, unless exempted therefrom for valid reasons by proper authority.

For detailed information regarding Military Science and Physical Education, see pages 65-74 and 75, respectively.

## ORGANIZATION OF INSTRUCTION

The curriculum is organized under thirteen departments:

1. Anatomy (including histology and embryology).
2. Physiology (including biochemistry).
3. Pathology (including bacteriology).
4. Parasitology and Tropical Medicine (including medical entomology and venomous animals).
5. Pharmacology.
6. Hygiene.
7. Medicine (including clinical pathology, dermatology neurology, psychiatry, roentgenology, therapeutics, and medical bibliography and preparation of articles for publication).
8. Surgery (including orthopedics and genito-urinary surgery).
9. Obstetrics.
10. Pediatrics.
11. Ophthalmology and Otolaryngology.
12. Gynecology.
13. Legal Medicine (including medical economics and ethics, and history of medicine).

The course of study extends over five years, including the intern year.

The work during the first two years is, in the main, confined to the fundamental sciences of medicine, and the time of the student is largely devoted to the laboratory work. During the first year this consists of work in gross anatomy, histology, biochemistry, embryology, neuro-anatomy, and physiology. During the second year the student takes up bacteriology, pathology, parasitology, pharmacology, hygiene, physical diagnosis, minor surgery, surgical anatomy, and the principles of surgery.

During the third and fourth years the time is largely devoted to the various clinical branches, emphasis being given to clinical instruction in the Philippine General Hospital and its free dispensary.

The fifth year consists of one year internship in the Philippine General Hospital.

*Hours of work in each subject in the first four years of the course*

Subjects	First Year		Second Year		Third Year		Fourth Year		Totals
	First semester	Second semester							
<b>ANATOMY</b>									
1. Gross Anatomy.....	464	464							
2. Histology.....	192								
3. Embryology.....	96								
4. Neuro-Anatomy.....		96							
									848
<b>PHYSIOLOGY AND BIOCHEMISTRY</b>									
1. Biochemistry.....	204								
2. Physiology.....		320							
									524
<b>PATHOLOGY AND BACTERIOLOGY</b>									
1. General and Systematic Pathology.....			256						
2. Medical Bacteriology.....			204						
3. Clinico-Pathological Conferences.....							(*)	(*)	
4. Advance Pathology.....								(*) 80	
									540
<b>PARASITOLOGY AND TROPICAL MEDICINE</b>									
1. Protozoology.....			68						
2. Helminthology.....			68						
3. Medical Entomology.....			34						
4. Venomous Animals.....			6						
5. Tropical Medicine.....					34			34	
									244
<b>PHARMACOLOGY</b>									
1. Chemical Pharmacology.....				64					
2. Experimental Pharmacodynamics.....				96					
3. Systematic Pharmacology.....				80					
4. Clinical Pharmacology.....					34				
									274
<b>HYGIENE</b>									
1. Hygiene and Sanitation.....				32					
2. Laboratory Course in Hygiene.....				96					
3. Epidemiology.....							34		
									162
<b>MEDICINE</b>									
1. Medical Bibliography and Preparation of Articles for Publication.....				11					
2. Physical Diagnosis.....					48				
3. Clinical Diagnosis.....						102			
4. Clinical Medicine.....						51	48		
5. Clinical Pathology.....						102			
6. Clinico-Pathological Conferences.....							17	16	
7. Therapeutics.....							32		
8. Dermatology and Syphilology.....								48	
9. Neurology.....								51	
10. Psychiatry.....									48
11. Roentgenology and Radium Therapy.....								34	

<sup>a</sup> Given jointly with the Department of Medicine.

# OUTLINE OF COURSES

277

*Hours of work in each subject in the first four years of the course—Cont.*

Subjects	First Year		Second Year		Third Year		Fourth Year		Totals
	First semester	Second semester							
<b>SURGERY</b>									
1. Minor Surgery.....			32						
2. Surgical Anatomy.....		64							
3. Surgical Pathology.....				34					
4. Surgery and Surgical Ward Class.....			48	51	96				
5. Surgical Dispensary.....				102	32		34		
6. Operative Surgery.....								64	
7. Surgical Clinic.....					32				
8. Ward Work in Surgery.....							96		
9. Genito-Urinary Surgery.....						51			
10. Orthopedic Surgery.....								48	
<b>OBSTETRICS</b>									
1. Physiological Obstetrics.....				51	48				
2. Pathological Obstetrics.....							48		
3. Ward Work in Obstetrics.....									147
<b>PEDIATRICS</b>									
1. Principles of Pediatrics.....				17					
2. Infant Hygiene and Infant Feeding.....			34		48	34	32		
3. Pediatric Conferences.....							16		
4. Social Pediatrics.....								48	
5. Ward Work in Pediatrics.....									
<b>OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY</b>									
1. Ophthalmology.....					32				
2. Otology.....					16				
3. Rhinolaryngology.....					16	17			
4. Eye, Ear, Nose, and Throat Clinic.....					16	17	48		
<b>GYNECOLOGY</b>									
1. Gynecology.....					32				
2. Gynecological Dispensary.....					32				
3. Gynecological Clinic.....						34			
4. Ward Work in Gynecology.....						(*)	(*)		
<b>LEGAL MEDICINE</b>									
1. Legal Medicine.....							34		
2. Medical Economics, Ethics, and History of Medicine.....							32		
Total.....	1,338		1,207		1,173		1,192		4,944

\* Given with the ward work in Surgery.

## ANATOMY

ARTURO GARCIA, B.A., M.D., Professor of Anatomy and Head of Department

JUAN C. NAÑAGAS, M.D., Associate Professor of Anatomy

MIGUEL CAÑIZARES, A.B., M.D., Assistant Professor of Anatomy

MARCIANO LIMSON, M.D., Assistant Professor of Anatomy

FIDEL CUAJUNCO, M.D., Instructor in Anatomy<sup>1</sup>

BRAULIO A. BORLAZA, M.D., Instructor in Anatomy

JOSE ENCARNACION, M.D., Instructor in Anatomy

VICENTE DE LOS SANTOS, Graduate in Arts, Anatomical Artist

### COURSES

The Department of Anatomy offers: (1) required courses in Gross Anatomy, Histology, Embryology and Neuro-Anatomy to first year medical students; (2) elective courses to seniors and other qualified students and (3) special courses in the Schools of Dentistry and Nursing.

#### REQUIRED COURSES

**Course I. GROSS ANATOMY.**—In the systematic study of Gross Anatomy the student is required to make a satisfactory dissection of one lateral half of the human body with the exception of the brain (See Neuro-Anatomy) under the guidance of the staff. Two students are assigned to each cadaver and the entire class dissect the same part at the same time. Throughout the work daily conferences are held with sections of the class, during which, the students recite on and demonstrate the parts dissected. Special supplementary lectures are given to emphasize the more important features of the dissection, the morphological significance and correlation with the clinical branches of medicine. Anomalies and variations encountered are recorded by the students.

Osteology is studied with the dissection by lecture-recitations and drawings of bones. One-half disarticulated skeleton is loaned to each student.

Time: 2 hours lecture, 11 hours laboratory a week. Total 212 hours, first semester first year.

2 hours lecture, 14 hours laboratory a week. Total 271 hours, second semester first year.

Drs. GARCIA, NAÑAGAS, CAÑIZARES, LIMSON, BORLAZA, and ENCARNACION.

**Course II. HISTOLOGY.**—The study of Histology consists of lectures, recitations, and laboratory work, with the free use of projection microscope and lantern. In the interpretation and study of the structure of elementary tissues and organs, the students individually study both gross and microscopic specimens. One compound microscope, 1 dissecting microscope and over 100 microscopic preparations are loaned to each student.

Time: 3 hours lecture, 9 hours laboratory a week. Total 204 hours, first semester first year.

Drs. GARCIA, CAÑIZARES, LIMSON, BORLAZA, and ENCARNACION.

**Course III. EMBRYOLOGY.**—The course covers the study of the cell, cell division, maturation and fertilization of the sex cells and the fundamental principles of inheritance. This is followed by a consideration

<sup>1</sup> On leave in the United States as Rockefeller Foundation fellow in Anatomy.

of segmentation and germ-layer formation and the development of the various organs and systems of the body with special reference to mammals and man. Serial sections and special dissections of chick and pig embryos are studied in the laboratory. The lectures are illustrated by good collection of models representing various phases of development.

Time: 2 hours lecture, 4 hours laboratory a week. Total 99 hours, first semester first year.

Drs. CAÑIZARES, LIMSON, BORLAZA, and ENCARNACION.

**Course IV. NEURO-ANATOMY.**—This course consists of a systematic study of the central nervous system and special sense organs. The brain and the spinal cord are dissected and complete series of Weigert preparations and fibre-tract reconstructions are studied to illustrate the finer structure. The laboratory is liberally supplied with complete collections of models and charts illustrating the development and the histology of the brain, cord and special senses.

The special senses are taken up in the latter part of the course by gross-dissection, and microscopic study of prepared sections supplemented by reconstructions of fibre-tracts.

Time: 2 hours lecture, 4 hours laboratory a week. Total 99 hours, second semester first year.

Drs. NAÑAGAS, CAÑIZARES, BORLAZA, and ENCARNACION.

#### ELECTIVE COURSES

**1. TOPOGRAPHICAL ANATOMY.**—The course consists of laboratory work, supplemented with lectures and demonstrations. The relations of the different organs and their morphological significance and correlation with clinical medicine are studied in cross-sections of the human body.

Time: Hours to be arranged.

Drs. GARCIA, NAÑAGAS, and CAÑIZARES.

**2. HISTOLOGICAL TECHNIQUE.**—The more common methods of laboratory technique in histology including reconstruction are taken up, and towards the end of the work the more special methods of staining and injection are considered. The equipment of the Department is fairly complete to accommodate small classes of students.

Time: Hours to be arranged.

Drs. GARCIA and NAÑAGAS.

#### SPECIAL COURSES

Special courses in General Anatomy and Histology for students of the School of Dentistry and the Philippine General Hospital School of Nursing are described in the respective catalogues of these schools.

### PHYSIOLOGY AND BIOCHEMISTRY

ISABELO CONCEPCION, M.D., Associate Professor of Physiology, and Acting Head of Department

EMILIO BULATAO, M.D., Associate Professor of Physiology

NARCISO CORDERO, M.D., Assistant Professor of Physiology<sup>1</sup>

WENCESLAO PASCUAL, M.D., Instructor in Physiology

DEOGRACIAS AGUSTIN, M.D., Instructor in Physiology

MARIANO OCAMPO, B.S., Instructor in Biochemistry

<sup>1</sup> On leave.

**1. BIOCHEMISTRY.**—Three hours of lectures or conference and nine hours of laboratory work a week during the first semester of the first year. Total, 204 hours.

Drs. CONCEPCION, AGUSTIN, and Mr. OCAMPO.

This course consists of lectures, conferences, and laboratory exercises on the chemistry of proteins, fats, and carbohydrates; the chemistry of body tissues, blood, digestion, secretions, excretions, and metabolism. A considerable portion of the course is devoted to the qualitative and quantitative examination of urine, gastric content, blood, and milk.

**2. APPLIED BIOCHEMISTRY (Elective).**—A course covering the most common methods of diagnosis, including the micro-chemical methods of examining blood and urine, together with a discussion of the recent advances in biological chemistry. The laboratory work includes analyses of blood, urine, duodenal, content, etc.

Dr. CONCEPCION and Mr. OCAMPO.

**3. PHYSIOLOGY.**—Five lecture hours and fifteen laboratory hours a week throughout the second semester of the first year. Total, 320 hours.

Drs. BULATAO, PASCUAL, and AGUSTIN.

This course includes the physiology of muscle, nerve, blood, lymph, circulation, respiration, digestion, secretions, excretions, heat processes, the central nervous systems, and special senses. The laboratory is well equipped with apparatus so that the students perform experiments themselves in the laboratory exercises, working individually or in small groups. Frequent conferences serve to correlate the laboratory work with the didactic instruction.

**4. RESEARCH IN BIOCHEMISTRY AND PHYSIOLOGY.**—The facilities of the department are available for advanced work and research by a limited number of qualified students or graduates who have had the necessary training.

Drs. CONCEPCION and BULATAO.

The courses in biochemistry and physiology for students of the Schools of Pharmacy, Dentistry, and Nursing are described in the respective catalogues of those schools.

## PATHOLOGY AND BACTERIOLOGY

LIBORIO GOMEZ, Ph.D., M.D., Professor of Pathology and Bacteriology<sup>1</sup>  
MARIA PAZ MENDOZA-GUAZON, M.D., D.T.M., Associate Professor of Pathology and Bacteriology, and Acting Head of Department

WALFRIDO DE LEON, A.B., M.D., D.T.M., Associate Professor of Pathology and Bacteriology

CARLOS MONSERRAT, A.B., M.D., Assistant Professor of Pathology and Bacteriology

REGINO J. NAVARRO, M.D., Assistant Professor of Pathology and Bacteriology

JUAN Z. SANTA CRUZ, A.B., M. D., Assistant Professor of Pathology and Bacteriology

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<sup>1</sup> On leave.

The Department of Pathology and Bacteriology occupies the lower floor of the east wing of the building of the College of Medicine. This contains a large, well-equipped general laboratory for teaching purposes, provided with a small demonstration amphitheater which may be completely darkened by curtains for projection lantern work. Adjoining this teaching laboratory are staff laboratory, equipped for routine and research, the preparator's room, the office of the department, and a record room for the storage of autopsy protocols and slides and teaching materials which is also available for the use of graduate students or research workers.

The pathological museum occupies the large room of the west wing corresponding in size and position to the teaching laboratory. It contains over 2,000 mounted specimens and very numerous duplicates and recent acquisitions illustrating the various phases of diseases. This includes a fairly complete collection illustrating general pathology, and a particularly valuable collection of specimens demonstrating the lesions more frequently encountered in tropical countries. The chief sources are the autopsy room of the College and the operating rooms of the Philippine General Hospital, though numbers of valuable specimens have been donated by the accession of the Museum of the Bureau of Science, which contained many specimens illustrating experimentally produced lesions in laboratory animals and valuable collections of series of cases on which was based much of the pioneer scientific work in the Philippine Islands. The Museum material is catalogued and is being constantly increased.

Autopsy material is abundant and widely varied in character. The City Morgue, which is also the morgue of the Philippine General Hospital, is in the building of the College of Medicine. The morgue and autopsy rooms are of modern type with facilities for the refrigeration of 50 bodies by means of ammonia gas; in a part of this freezing temperature can be maintained. As regards autopsy work the morgue is administered in cooperation with this department, and all of the autopsies, a minimum of 500 annually, are performed under the direction of the head of this department. Members of the staff also performed autopsies, chiefly on bodies dying of infectious diseases, in the morgue of the San Lazaro Hospital. Over 11,800 autopsies have been performed in the department since its organization. The records of these are bound in readily accessible form and the catalogue of the clinical records of most of them is easily available. Histological preparations from most of these materials are filed in the records of the department and are available for the teaching or research.

#### COURSES

The obligatory courses in this department under the new curriculum extend throughout the first semester of the second year, and the second semester of the fourth year, in the College of Medicine. Third, fourth, and fifth year students are required to attend the weekly clinicopathological conference which is also open to the medical profession at large. Elective courses are offered to students of the fourth year. Attendance at autopsies is obligatory during the regular required courses in pathology, and during the fourth and fifth year, students who have seen the clinical aspects of cases dying in the wards of the Philippine General Hospital, are frequently enabled to see their pathological-anatomic aspects.

1. *GENERAL AND SYSTEMATIC PATHOLOGY.*—Six didactic and twenty-two laboratory hours a week during the second half of the first semester of the second year. Total, 256 hours.

Drs. MENDOZA-GUAZON, DE LEON, and SANTA CRUZ.

This course comprises an elementary survey of general pathology, including disturbances of the body fluids, retrograde and reparative processes, inflammation, the principal pathogenic bacterial and fungus infections and a consideration of tumors. Finally the more common pathology of the various organ systems is taken up rapidly.

The work is based primarily on a study of histopathology as seen in prepared microscopic slides which are loaned for the period of the course. This is supplemented by introductory demonstrations by lantern slides and the projection of additional microscopic preparations, and by a collection of photographs, drawings, and illustrations from standard textbooks and original sources.

The importance of gross pathology is recognized by the free use of both mounted and unmounted museum specimens, and compulsory attendance at autopsies. The class is divided into small sections and instructed in autopsy technic. Each student performs at least one autopsy under the immediate direction of a member of the staff, and is responsible for making microscopic preparations of that case. Following its thorough study a conference is held with a member of the department. In addition occasional visits are made to the dispensaries and wards of the Philippine General Hospital and San Lazaro Hospital in an effort to correlate the clinical and pathological findings.

2. *MEDICAL BACTERIOLOGY.*—Six didactic and eighteen laboratory hours a week during the first half of the first semester of the second year. Total, 204 hours.

Drs. DE LEON, MONSERRAT, NAVARRO, and SANTA CRUZ.

The course covers the subjects of bacteriology and immunology; including sterilization, staining, bacteriological technique, morphology, media making, culturing of bacteria, and the general principles of infection and immunity. Then follows a careful study of most of the pathogenic bacteria and fungi. Immunity is taught by actual laboratory exercises and experiments done by the students themselves in the different technic of immunological methods and required to observe results. Frequently fresh material is obtained by the students themselves from hospital, dispensary and morgue cases and the organisms so obtained are identified and compared with the stock laboratory strains.

3. *CLINICO-PATHOLOGICAL CONFERENCE.*—One hour a week during the third and fourth years. Total, 66 hours.

Dr. MENDOZA-GUAZON.

The clinical histories of cases from the Philippine General Hospital that have come to autopsy are presented and discussed by a member of the Department of Medicine, after which the pathological findings of the cases are discussed and preserved specimens demonstrated.

4. *ADVANCED PATHOLOGY*.—Two didactic and three laboratory hours a week during the second semester of the fourth year. Total, 80 hours.

Drs. MENDOZA-GUAZON, DE LEON, and SANTA CRUZ.

The aim is to correlate the exact pathology with the clinical histories in individual cases. Each week, a complete autopsy is performed by an instructor on a selected case when possible. The students record the autopsy findings, study and describe the organs, and preserve tissues for sectioning and museum purposes. Bacteriological and parasitological examinations are carried out as indicated. On the following days frozen and rapid-process paraffin sections are prepared and studied, and a final diagnosis is arrived at. In this comparison is made with the protocols, sections, and gross specimens of cases in the records in the department. The week's work is reviewed in a final conference (with the coöperation of a member of the Department of Medicine).

5. *SPECIAL PATHOLOGY* (Elective).—Special courses of 68 hours or more for a limited number of advanced students will be arranged, the exact scope to suit immediate conditions and, so far as practicable, the preferences of the students.

Drs. MENDOZA-GUAZON and DE LEON.

6. *CLINICAL BACTERIOLOGY* (Elective).—An elective course of 68 hours offered to fourth year students. It will be given whenever a sufficient number of students apply for it. It will be devoted to the practical application of modern bacteriological and serological methods to the diagnosis of clinical cases.

Drs. MONSERRAT and NAVARRO.

The courses in pathology and bacteriology for the students of the School of Dentistry and the School of Pharmacy are described in the respective catalogues of those schools.

## PARASITOLOGY AND TROPICAL MEDICINE

LUIS GUERRERO, M.D., Professor of Parasitology and Tropical Medicine and Head of Department

LAMBERTO LEIVA, M.D., D.T.M., Associate Professor of Parasitology

CANDIDO AFRICA, M.D., Assistant Professor of Parasitology and Tropical Medicine

The department gives instruction to medical students in their second year, on the medical relations of lower animals to man, animal parasites and arthropod vectors of disease. Lectures in Tropical Medicine are given in the third year. The students attend conferences and take clinical clerkship in their fourth year.

The courses in parasitology for the students of the School of Pharmacy and the School of Dentistry are described in the respective catalogues of those schools.

The coöperation of the staff of the department is extended to members of the clinical laboratory of the Philippine General Hospital in the identification of doubtful specimens of parasites.

Qualified students may undertake research on problems for which adequate laboratory or clinical facilities can be provided.

The courses in this department are given under two sections, viz., Parasitology and tropical Medicine.

I. *PARASITOLOGY*.—First semester of the second year. Total (didactic, 54, laboratory 122), 176 hours.

It will include instruction in Protozoölogy, Helminthology, Medical Entomology, and Venous Animals.

In Protozoölogy, the morphology and life history of the more important human protozoan parasites belonging to the sarcodina, mastigophora, infusoria, and sporozoa. Certain free-living species will be taken up for comparative study. Cultures and experimentally infected animals will also be utilized. Emphasis will be laid on the morphological differences between pathogenic and non-pathogenic forms. In the laboratory both stained and fresh material will be used, and the students will be taught the simple and more practical methods of studying and staining the organism, the methods chosen being best adapted to the purposes of the clinical laboratory and the office of the general practitioner.

In Helminthology, the study will be devoted to the morphology of the different groups of parasitic worms and the life cycles of typical species. The students will be taught the identification of species which are found in man and domestic animals, the practical methods of obtaining and identifying the eggs, and simpler methods of prophylaxis.

In Medical Entomology, the study of poisonous insects and arachnids, insects parasitic on man, domestic insects, biting flies, mosquitoes, and pseudoparasites will be taken up. Lectures will be based on a certain amount of laboratory and field work, and study of museum specimens. Attention will be paid to the character, habits, life histories, and classification of insects and arachnids, particularly to their role in the transmission of bacterial, protozoan, and helminthal diseases, the production of pathological disturbances, and to prophylactic and remedial measures.

Toward the end of the course a few lecture-demonstrations will be given on animals which cause poisoning in man. Special attention will be paid to the general identification of venomous forms of coelenterata, pisces, amphibia, and reptilia; to the nature and effects of animal poisons, and to the treatment of disturbances caused by these animals.

II. *TROPICAL MEDICINE*.—Two hours a week of lecture during the first semester of the third year, clinical clerkship and conference work once a week during the entire fourth year. Total, 68 hours.

The course deals with the clinical manifestations of tropical diseases of protozoan, helminthal, bacterial, spirochaetal, fungoid, and nutritional origin, with particular reference to those most prevalent in the Philippine Islands.

The climatology, pathology, treatment and prophylaxis of these affections are also discussed in the lectures which are supplemented by practical demonstrations of cases found in the ward, and by means of photographs of these which are not actually seen in the clinic or are not found in this country.

The student is required, in addition, to prepare complete clinical histories and physical examinations of cases assigned to him. He is also required to follow the course of the disease and its course under treatment. His findings and conclusions are then discussed before the class.

## PHARMACOLOGY<sup>1</sup>

DANIEL DE LA PAZ, M.D., Professor of Pharmacology

FAUSTINO GARCIA, M.D., Associate Professor of Pharmacology

ROMULO GUEVARA, M.D., Assistant Professor of Pharmacology

JOSE E. JIMENEZ, A.B., Ph.C., B.S. (Phar.), Phar.D., Instructor in Pharmacology

The chief objectives of the teaching of pharmacology consist (1) in imparting sufficient pharmacologic knowledge indispensable to a scientific understanding of therapeutics, (2) in cultivating the mental attitude which requires demonstration of pharmacologic statements and deduces from observations the conclusions which they justify, and (3) in familiarizing the students with the technical procedure generally employed in pharmacologic experimentation.

### COURSES

*Second Year.*—The instruction is given by lectures, recitations, and laboratory work during the second semester. The first part of the course is devoted to chemical pharmacology, in which the students have an opportunity of learning the essential of pharmacy, the art of prescribing medicines, the principles and reactions utilized in toxicologic analysis, the reactions of antidotes, and the physico-chemic phenomena which are frequently invoked in the explanation of the actions of drugs. This is followed by a consideration of the more important drugs. With each drug are discussed the important effects and their scientific explanations, the symptoms and treatment of poisoning, the *materia medica*, and the clinical uses. The laboratory exercises are selected to illustrate the subject-matter of the didactic part of the course and to familiarize the students with the methods and processes of pharmacologic experimentation. Fifteen hours (didactic 6, laboratory 9) a week.

*Third Year.*—This course is given during the first semester as a continuation of the first course. It consists of lectures and recitations on the treatment with drugs of selected clinical conditions, including class drills in prescription writing. Case histories are presented from time to time and the treatment outlined therein are discussed. Before completing the course the students are required to be able to prescribe correctly the drugs of highest importance. Two hours a week.

### RESEARCH WORK

Every encouragement is given advanced students who desire to determine the value of imperfectly known Philippine medicinal plants. The department is equipped with materials and apparatus for animal experiments and for chemical and pharmaceutical work.

## HYGIENE AND PREVENTIVE MEDICINE

HILARIO LARA, M.D., C.P.H., Dr. P.H., Associate Professor of Hygiene and Head of Department

AMPARO CONCHA-BRILLANTES, M.D., Assistant Professor of Hygiene

RAMON MACASAET, A.B., M.D., Instructor in Hygiene

CRISOSTOMO ORTIGAS, B.S.M.E., Instructor in Hygiene

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<sup>1</sup> The courses in pharmacology for students of the School of Pharmacy, the School of Dentistry, and the Philippine General Hospital School of Nursing are described in the respective catalogues of those schools.

The Department of Hygiene and Preventive Medicine offers two required courses to medical students, one required course to dental and one required course to pharmaceutical students, besides five elective courses to advanced students who intend to take up public health work. It also gives special hygiene courses to undergraduate and graduate nurses. It gives a series of lectures to Liberal Arts students in connection with their physical education training. The courses in hygiene for the students of the Schools of Pharmacy, Dentistry and Nursing are described in the respective catalogues of those schools.

#### REQUIRED COURSES

**Hygiene 1. PRINCIPLES OF HYGIENE AND PUBLIC HEALTH.**—Given to third year medical students 8 hours a week during the first semester. Lectures 2 hours and Laboratory 6 hours a week. Total, 136 hours.

Drs. LARA, CONCHA-BRILLANTES, MACASAET, and Mr. ORTIGAS.

The course consists of lectures, field demonstrations and laboratory exercises. Effort is made to include in the course a summary and a synopsis of the broader community applications of all that the medical student has learned during his preceding years. The Department attempts also to acquaint the students of the duties and obligations of the physician to the public regarding hygiene and preventive medicine.

Topics on infection and the agents that injure health, immunity, resistance and defenses of health, elementary vital statistics, the epidemiology and control of various groups of communicable diseases, water supply, lighting, air and ventilation, sewage disposal, refuse, maternal and infant hygiene, school hygiene, food supply and a few other hygiene topics are taken up in the lecture and supplemented as much as possible with laboratory exercises and demonstrations. The laboratory examination of water, milk and foods is considered, but more emphasis is given to important standard methods of analysis. A simple problem in epidemiology is worked out in the laboratory, to teach students in a general way the principles and methods used in epidemiological investigation.

Each student is required to make a sanitary survey of his or her own locality the result of which is presented to the Department in the form of a brief report as one of the prerequisites to admission into the advanced course—Hygiene 2. These reports become the property of the College of Medicine and are kept on file.

Arrangements have been made with the Director of Health whereby students (after completing Hygiene 1), who intend to take up public health, are given temporary employment as assistants in some health districts during the summer as part of their field preparation for the work.

Prerequisites: First 2 years of College Curriculum or its equivalents.

**Hygiene 2. SPECIAL PROBLEMS IN HYGIENE AND PUBLIC HEALTH.**—Given to fourth year medical students one hour twice a week during the first semester. Total 34 hours.

Dr. LARA.

The course consists of lectures, demonstrations, and conferences on special problems in hygiene and public health. The best survey reports are selected and presented to the class in the conferences.

Prerequisites: Hygiene 1, and one sanitary survey report.

**ELECTIVE COURSES**

Hygiene 3. *PRACTICAL FIELD WORK AND DEMONSTRATION IN CITY AND RURAL SANITATION.*—Hours and work assignment to be arranged with Head of Department. (For advanced students training for health officership.)

Hygiene 4. *PRINCIPLES OF VITAL STATISTICS.*—To be given through arrangement with the Head of Department. (For advanced students training for health officership.)

Hygiene 5. *INDUSTRIAL HYGIENE, CHILD HYGIENE AND METHODS OF EPIDEMIOLOGICAL INVESTIGATION.*—(For graduate students training for public health work.)

Hygiene 6. *PUBLIC HEALTH ORGANIZATION AND ADMINISTRATION.*—(For a limited number of graduate students during the first semester.)

Hygiene 7. *RESEARCH IN PUBLIC HEALTH.*—(To be given to advanced and qualified students. Special problems will be assigned to students, and work will be directed and supervised by the Department.)

**MEDICINE**

ARISTON BAUTISTA, M.D., Professor of Medicine and Head of Department

ANTONIO G. SISON, A.B., M.A., M.D., Professor of Medicine

RICARDO FERNANDEZ, M.D., Professorial Lecturer on Physical Therapy

PERPETOO GUTIERREZ, M.D., Associate Professor of Dermatology and Syphilology

ELIAS DOMINGO, M.D., Assistant Professor of Neurology and Psychiatry

PEDRO T. LANTIN, M.D., D.T.M., Assistant Professor of Medicine

WENCESLAO VITUG, A.B., M.D., Assistant Professor of Medicine

AGERICO B. SISON, A.B., M.D., Non-resident Instructor in Medicine

MODESTA IGNACIO, A.B., M.D., Instructor in Medicine

PATRICIO IGNACIO, A.B., M.D., Assistant in Medicine

AUREO GUTIERREZ, A.B., M.D., Assistant in Medicine

JOSE HIZON, A.B., M.D., Assistant in Medicine

FRANCISCO PASCUAL, A.B., M.D., Assistant in Medicine

GABRIEL A. BERNARDO, Lecturer on Library Methods

Instruction in the Department of Medicine is given from the second semester of the second year to the fifth year of the course inclusive. With the large variety and abundance of clinical material available in the Philippine General Hospital, didactic lectures are reduced to a minimum as a method of teaching in this department, and instruction is given by ward and dispensary talks, actual bedside work by the students, assigned readings and conference for discussion of the cases studied.

Particular attention is devoted to those etiologic factors and clinical manifestations of diseases which are peculiar to a tropical environment, and to the diagnosis and treatment of those tropical diseases encountered in the Philippine Islands.

Clinics are given daily in the wards of the Philippine General Hospital. Clinics on the exanthemata and acute infectious diseases in general are

held at the Hospital for Infectious Diseases at San Lazaro. Students are required to attend autopsies on cases of patients that have died in the wards.

#### COURSES

1. *MEDICAL BIBLIOGRAPHY AND PREPARATION OF ARTICLES FOR PUBLICATION*.—Eleven lectures in the first semester of the second year. Total, 11 hours.

Mr. BERNARDO.

A lecture course with assigned reading and problems; medical reference tools; preparation of manuscript; proof reading; study of medical periodicals; documents, and society publications; preparation of papers and bibliographies.

2. *PHYSICAL DIAGNOSIS*.—One lecture and two hours of practical work a week during the second semester of the second year. Total, 48 hours.

Drs. A. G. SISON, A. B. M. SISON, M. IGNACIO, and P. IGNACIO.

The course consists of lectures on the principles of physical diagnosis and the general methods of physical examination. In the practical work, the students are grouped in small sections. Each student learns first the normal physical signs on healthy individuals and then he is given practical demonstrations and exercises in eliciting the symptoms and physical signs of disease.

3. *MEDICINE* (Third Year).—Clinical Diagnosis. Two lectures and four hours of practical work in the ward during the first semester. Total, 102 hours.

Drs. A. G. SISON and A. B. M. SISON.

This part of the course is a continuation of physical diagnosis and includes instruction in history taking, the interpretation of symptoms and laboratory findings, and the use of the important instruments of precision in medical diagnosis. Special attention is given to the physiological interpretation of symptoms and their analysis in order to impress upon the minds of the students the importance of functional pathology.

*Clinical Pathology*.—One didactic and five laboratory hours a week during the second semester of the second year. Total, 102 hours.

Drs. VITUG and M. IGNACIO

The instruction is designed to give the students a working knowledge in the chemical analysis and microscopical examination of feces, urine, sputum, blood, gastric contents, materials from various lesions of the skin, and of fluids obtained by aspiration. Special stress is laid on the practical diagnostic importance of laboratory findings which are correlated with the clinical manifestations and course of diseases as observed in the ward. Students are shown important cases, and as far as possible are taught the technic involved in the collection of materials and in the performances of special functional tests. The subject is presented to the students more from the standpoint of a clinician than that of a mere laboratory worker.

*Clinical Medicine*.—Three lectures including clinical demonstration a week during the third year.

Drs. A. G. SISON, GUTIERREZ, and LANTIN.

The instruction consists of lectures on assigned topics and clinical lectures consisting of demonstration with discussion of selected cases by the teacher to a small group of students in the ward, none of whom had seen the case previously.

*Clinico-Pathological Conferences.*—One hour a week during the third year. Total, 33 hours.

Dr. A. G. SISON.

These conferences are given jointly by the Department of Pathology and the clinical departments and consist of a clinical and pathologic discussion of the cases from the Philippine General Hospital that have come to the autopsy.

*Therapeutics.*—Two lectures a week during the second semester of the third year. Total, 32 hours.

Drs. LANTIN and A. B. M. SISON.

Lectures on the most important drugs that are used in the practice of medicine, including their indications and contraindications, and discussion of the application of the drugs studied to the treatment of diseases.

4. *DERMATOLOGY AND SYPHILOLOGY.*—Three lectures with demonstration a week during the second semester of the third year. Total, 48 hours.

Dr. GUTIERREZ.

This course consists of lectures with demonstration of common skin diseases. Special stress is laid on mycotic infections which are unusually abundant in this climate. The lectures are supplemented with lantern slide demonstrations of diseases not commonly found in the dispensary. Syphilology is given in the later part of the course by lectures and practical demonstration of cases in the Dispensary. Materials in the venereal clinic of the Philippine Health Service are also utilized. In addition, the students are required to study cases in the Dermatology Clinic of the Dispensary.

5. *MEDICINE (Fourth Year).*—Clinical Medicine. Ten hours of ward work a week for one semester.

Drs. BAUTISTA, A. G. SISON, GUTIERREZ, VITUG, and A. B. M. SISON.

Each student studies carefully a number of cases of which he is required to write complete clinical histories and perform laboratory examinations.

Conferences of the class are held five times a week at which the work done by the students, their findings and interpretations are discussed, approved, or criticized and corrected. Emphasis is laid on the procedure of making medical diagnosis and the application of drugs, dietetics, and other remedies to the treatment of hospital cases.

The students are thus afforded an opportunity to participate to a great degree in their own training.

*Dermatology and Syphilology.*—Three hours a week. Total, 51 hours.

Dr. GUTIERREZ.

This is a continuation of the course in the third year.

*Neurology.*—One lecture and two demonstrations a week during the first semester of the fourth year. Total, 51 hours.

Dr. DOMINGO.

The instruction consists of a brief consideration of the neuroanatomy and neurophysiology in relation to clinical condition and study of cases in the hospital wards or the Free Dispensary with regard to the etiology, symptomatology, treatment and prophylaxis of nervous diseases. The students are required to read on the diseases presented. Particular reference is made to those nervous diseases which are prevalent in the tropics. It is given at the Philippine General Hospital.

*Psychiatry.*—One didactic and two clinical hours a week during the second semester of the fourth year. Total, 48 hours.

Dr. DOMINGO.

The instruction is mainly devoted to the study of selected psychotic cases at the San Lazaro Hospital, preceded by a brief consideration of normal mental mechanisms and the various types of mental reaction observed in different individuals. The students are shown the procedure of making mental examination; different forms of psychoses, their treatment and other essential points in connection with each case studied. The social problems relative to the insane and the feeble-minded are considered in the discussion of each type of psychosis. The students are also shown the application of hydrotherapy, restrain, seclusion, feeding by tube and other means employed in the management of insane patients at the San Lazaro Hospital.

*Roentgenology and Radium Therapy.*—Two lectures a week during the first semester of the fourth year. Total, 34 hours.

Drs. FERNANDEZ, CASTILLO, and GONZALEZ.

The instruction includes lectures on the physics of X-rays, clinical aspects of Roentgenology, and the general principles of radium therapy. It also includes practical demonstrations given by the staff of the Department. In addition, students are taught the interpretation of the skiagrams that the Hospital keeps for teaching purposes.

*Clinico-Pathological Conferences.*—One hour a week.

Dr. A. G. SISON.

This is a continuation of the work given in the third year.

**6. INTERNSHIP IN MEDICINE.**—An internship of four months in this Department is required of the fifth year students for graduation.

Drs. BAUTISTA, A. G. SISON, and Assistants.

## DEPARTMENT OF SURGERY

JOSE EDUQUE, M.D., Professor and Head of the Department of Surgery  
....., Professor of Surgery

CARMELO M. REYES, M.D., Associate Professor of Surgery and Gynecology  
ANTONIO DANIEL VAZQUEZ, B.S., M.D., Assistant Professor of Surgery  
ANICETO Y. MANDANAS, M.D., Non-Resident Instructor in Surgery

JANUARIO ESTRADA, M.D., Non-Resident Instructor in Surgery

JOSE I. ABUEL, M.D., Instructor in Surgery (on Rockefeller's Foundation fellowship)

CECILIO D. FRANCO, M.D., Instructor in Surgery and Senior Resident

ANDRES T. ZAVALLA, A.B., M.D., Assistant in Surgery and Assistant Resident

ANTONIO AGCAOILI, A.B., M.D., Assistant in Surgery and Assistant Resident

RICARDO JARA, M.D., Assistant in Surgery and Assistant Resident

EDUARDO ORTEGA, M.D., Assistant in Surgery and Assistant Resident  
....., Assistant in Surgery and Assistant Resident

The Department of Surgery offers courses of didactic and practical instruction in general surgery, genito-urinary surgery, and orthopedics to second, third, fourth, and fifth year students.

The instruction is given by means of lectures, recitations, conferences, demonstrations, and practical work in the laboratory, ward, dressing room, operating room and out-patient service. The method of teaching is conducted in such manner that the lecture-recitations are supplemented with clinical demonstrations at the bedside, lecture room, or amphitheater.

The Philippine General Hospital, the Free Dispensary, the Experimental Surgery Pavilion, the Operative Surgery Building, and the Anatomical and Pathological Laboratories of the College of Medicine afford excellent opportunity for teaching the clinical, the operative, and laboratory branches of surgery.

Surgical pathology is given in the laboratories of the College of Medicine and in the Hospital.

Surgical anatomy is given in the Operative Surgery Building.

The course in operative surgery on the cadaver is given in the Operative Surgery Building. The animal work is done in the Experimental Surgery Pavilion where there are excellent facilities for carrying out aseptic surgery.

Clinics are held daily by the members of the Staff in the Hospital and Dispensary, where the students find abundant material for their practical work.

The courses given in the department are grouped as follows:

*Surgery for the Second Year.*—Surgery and Ward Class, Minor Surgery, and Applied Anatomy.

*Surgery for the Third Year.*—Surgery and Ward Classes, Surgical Pathology, Surgical Dispensary, and Surgical Clinic.

*Surgery for the Fourth Year.*—Surgical Clinic, Operative Surgery, Genito-Urinary Surgery, Orthopedics, Ward Work, and Conferences.

#### SECOND YEAR

1. *SURGERY AND WARD CLASS.*—Two didactic and one clinical hours a week during the second semester. Total, 48 hours.

Dr. MANDANAS.

2. *SURGICAL DISPENSARY.*—Total, 32 hours.

Drs. MANDANAS and JARA.

Lectures, recitations and demonstrations dealing with the fundamentals of surgery, such as infections, hemorrhage, shock, etc.

3. *MINOR SURGERY.*—Two hours a week during the second semester. Total, 32 hours.

Dr. FRANCO.

Demonstrations and practical work in the application of bandages, different kinds of dressings and surgical appliances. The agents used in

procuring asepsis and antisepsis are also discussed. First aid treatment of emergency cases such as fractures, wounds, hemorrhage, burns, etc., is shown to the students whenever possible, so that they may apply it afterward under the guidance of the instructor.

4. *APPLIED ANATOMY*.—Four hours laboratory work a week during the second semester. Total, 64 hours.

Dr. ESTRADA.

Laboratory work in anatomy with the object of familiarizing the student with the various tissues and organs of the body that have important bearing with surgical diagnosis and treatment. Anatomical charts, models, manikins, special dissections and specimens are used for demonstration in this course, in order to facilitate the dissection to be done by the students on the cadaver. Demonstrations are also made on living subjects, so as to illustrate the surface landmarks of the organs actually involved by disease.

### THIRD YEAR

1. *SURGERY AND WARD CLASSES*.—Two didactic and one clinical hours a week during the first semester, and four didactic and two clinical hours a week during the second semester. Total, 127 hours.

Drs. EDUQUE, REYES, and VAZQUEZ.

Lecture-recitations with demonstrations, which consist of a systematic discussion of the surgical diseases of the different regions of the body. The subject of tumors, fractures, and dislocations is included in this course.

The subject matter of the didactic instruction is illustrated in the ward classes by presenting selected cases to the students. The cases are thoroughly discussed with special reference to diagnosis and treatment.

2. *SURGICAL PATHOLOGY*.—Two hours laboratory work a week during the first semester. Total, 34 hours.

Dr. REYES.

This is a practical work for the purpose of illustrating the pathology of the principal surgical diseases, particular attention being given to the following up of the pathological material in connection with the clinics. Gross and microscopical specimens are demonstrated to the students. The cases from which the specimens are to be removed are previously seen and studied by the students, and the result of histological examination is compared with the clinical diagnosis previously made.

3. *SURGICAL DISPENSARY*.—Given five hours a week during the first semester and two hours a week during the second semester. Total, 134 hours.

Drs. MANDANAS, ESTRADA, and FRANCO.

A practical instruction in surgical diagnosis and treatment of minor conditions. Students are allowed to treat patients and assist in minor operations. Given in sections.

4. *SURGICAL CLINIC*.—Two hours, a week during the second semester. Total, 32 hours.

Dr. EDUQUE and ASSISTANTS.

The cases taken up in this clinic are demonstrated to the students, and the diagnosis and surgical treatment fully discussed before operation. As

far as practicable, the operative technic of selected cases is shown step by step during the course of the operation.

#### FOURTH YEAR

1. *SURGICAL CLINIC*.—Four hours a week during the second semester. Total, 64 hours.

Dr. EDUQUE and ASSISTANTS.

This is a continuation of the surgical clinic given in the third year. Students taking this work not only view operations, but are also required to administer anaesthetics and assist the operator.

2. *OPERATIVE SURGERY*.—Two laboratory hours a week during the first semester. Total, 34 hours.

Drs. EDUQUE, REYES, and FRANCO.

In this part of the course, students perform operations both on the cadaver and animals. On the cadaver the principal classical operations are performed; while on animals the aim is to develop a good aseptic technic and to familiarize the students with major operative procedures. The student performing the operation attends to the post-operative care of the animal operated upon. Autopsies are made on animals that die from operation in order to determine the exact cause of death.

3. *GENITO-URINARY SURGERY*.—One didactic and two clinical hours a week during the first semester. Total, 51 hours.

Dr. EDUQUE and FRANCO.

Lectures or recitations covering the principal diseases of genito-urinary organs including venereal diseases, and practical instruction given in sections in the dispensary and in the ward, in order to familiarize the students with the different methods of diagnosis and treatment.

4. *ORTHOPEDICS*.—One didactic and two clinical hours a week during the second semester. Total, 48 hours.

Drs. VAZQUEZ and AGCAOILI.

This work covers the main affections in the form of didactic and practical instruction. Each week, one hour is devoted to lecture or recitation and two hours to clinical work, which includes practical work in the application of plaster of Paris jackets, casts, splints, etc.

5. *WARD WORK AND CONFERENCES*.—Twelve hours a week for eight weeks in the first or second semester. Total, 96 hours.

Dr. EDUQUE and ASSOCIATES.

A practical instruction given to a small section of the class. Students work as clinical clerks under the supervision of the resident instructors. They are assigned cases in the wards. They are required to take histories, make physical and laboratory examinations, follow the clinical course of the operated and unoperated cases, and then make observations on the treatment given to the patients. The cases studied are presented at the conference and their complete record read before the class for comment and discussion.

**FIFTH YEAR**

1. *INTERNSHIP IN SURGERY.*—Fifth year students are required to take three months internship in this Department before graduation.

Dr. EDUQUE and ASSOCIATES.

2. *EXPERIMENTAL SURGERY.*—An elective course open to a limited number of qualified students desiring to do experimental work in surgery.

Dr. EDUQUE.

**OBSTETRICS**

BALDOMERO ROXAS, A.B., M.D., Professor of Obstetrics and Head of Department

HONORIA ACOSTA-SISON, M.D., Associate Professor of Obstetrics

ANTONIO VILLARAMA, M.D., Assistant Professor of Obstetrics

GUILLERMO RUSTIA, M.D., Assistant Professor of Obstetrics

LUIS DAMIAN, M.D., Instructor in Obstetrics

PEDRO CONCEPCION, M.D., Assistant in Obstetrics

VICTORINO DATOC, M.D., Assistant in Obstetrics

1. *OBSTETRICS* (Physiological and pathological).— Three hours a week during the first and second semesters of the third year. Total, 99 hours.

Physiological Obstetrics, first semester.

Drs. ROXAS, ACOSTA-SISON, and VILLARAMA.

Lectures, recitations, demonstrations dealing with the anatomy of the generative organs and of the birth canal; physiology and development of the ovum; physiology of pregnancy; prenatal care; asepsis in obstetrics; physiology and clinical course of labor; especial emphasis on the mechanism of labor with exercises on the manikin; postnatal care and changes during the normal puerperium.

Pathological Obstetrics, second semester.

Drs. ROXAS, ACOSTA-SISON, VILLARAMA, and RUSTIA.

Lectures, recitations and demonstrations on the pathology of pregnancy, labor and puerperium. The students are shown the technic of operative obstetrics with the use of manikin and cases in the delivery room.

2. *Ward work in Obstetrics.*—Twelve hours a week for four weeks in the first and second semesters of the fourth year. Total, 96 hours.

This work is a preparation for the interne service in the Department of Obstetrics. Each student is assigned to a number of cases of which he is required to write clinical histories, to perform laboratory examinations and to write daily observations. His work is then presented at the class conference for discussion, criticism and corrections. Each student is detailed on twenty-four-hour duty in the Philippine General Hospital during which time he is allowed to attend normal cases both inside and outside services. The student is thereby familiarized with the actual practice of obstetrics technic in the hospital and in the rural districts.

3. *INTERNSHIP IN OBSTETRICS.*—One month of internship in the Department of Obstetrics is required of the fifth year students for graduation.

## DEPARTMENT OF PEDIATRICS

JOSE ALBERT, M.D., Professor of Pediatrics, and Head of Department  
 ALBERTO TUPAS, M.D., Assistant Professor of Pediatrics

ALBINO N. OCAMPO, M.D., Instructor and Senior Resident in Pediatrics

PANFILO LEJANO, M.D., Assistant and Associate Resident in Pediatrics

MOISES B. ABAD, M.D., Assistant and Junior Resident in Pediatrics

The instruction in this Department is based on fundamental principle that the child is not a mere miniature adult, but has its own independent physiology, pathology, and therapeutics.

The courses are arranged to furnish a general survey of the subject through lectures, conferences, recitations, and practical work in the dispensary and wards of the Philippine General Hospital.

The children's ward and the Dispensary receive not only the ordinary types of diseases manifested in early life, but also the rarer more complex forms, which are sent in for diagnosis and treatment by physicians and former students. During the last year over 1,383 patients were admitted to the ward and over 7,085 infants and children were cared for and treated in the dispensary.

Students are required to attend autopsies of cases admitted to the ward. Clinics on the exanthematous and contagious diseases are held at the Hospital for Infectious Diseases at San Lazaro.

The schedule of the course has been planned fully to cover the field of Pediatrics, not only from the general standpoint, but also from the preventive and social as well. Its aim is to prepare scientific and practical practitioners.

### THIRD YEAR

**1. PRINCIPLES OF PEDIATRICS.**—Growth and development; exudative, neuropathic, and spasmophilic constitutions; status lymphaticus. One hour a week during the first semester. Total, 17 hours.

Dr. OCAMPO.

**2. INFANT HYGIENE AND INFANT FEEDING.**—Conferences with demonstrations on infant hygiene, nutrition, and feeding. The application of preventive medicine to children is also discussed in the course. Two hours a week during the first semester. Total, 34 hours.

Dr. TUPAS.

**3. CONFERENCES AND QUIZZES ON:**

- (a) The diseases of the ductless glands.
- (b) Idiotism.
- (c) Diplegia spastica.
- (d) Congenital heart diseases.
- (e) Gastro intestinal and uro-genital malformations.
- (f) Convulsive disorders.
  - (1) Eclampsia.
  - (2) Tetany.
- (g) Scurvy.
- (h) Rickets.

One hour a week during the second semester. Total, 17 hours.

Dr. OCAMPO.

## 4. CONFERENCES AND QUIZZES ON:

- (1) Diseases of the newborn.
- (2) Blood diseases.
- (3) Interpretation of:
  - (a) Crying.
  - (b) Vomiting.
  - (c) Stools.
  - (d) Meningism.
  - (e) Fever.
  - (f) Edema.
  - (g) Drowsiness.
  - (h) Paralysis.
- (4) History taking.

Two hours a week during the second semester. Total, 32 hours.

Dr. TUPAS.

## FOURTH YEAR

## 5. INFECTIOUS DISEASES:

- (1) Exanthematas.
- (2) Whooping cough.
- (3) Diphtheria.
- (4) Typhoid.
- (5) Malaria.
- (6) Meningitis.
- (7) Rheumatism.
- (8) Tuberculosis.
- (9) Syphilis.

Two hours a week during the first semester. Total, 34 hours.

Dr. ALBERT and ASSISTANTS.

## 6. CONFERENCES ON:

- (1) Nutritional disturbances.
- (2) Skin diseases.
- (3) Broncho-pneumonia.
- (4) Empyema.
- (5) Infantile beriberi.
- (6) Therapeutics in children.

Two hours a week during the second semester. Total, 32 hours.

Dr. ALBERT and ASSISTANTS.

7. SOCIAL PEDIATRICS.—One lecture a week during the second semester of the fourth year on child welfare. Total, 16 hours.

Dr. ALBERT.

Students are given practical work on Sunday meetings of the "Little Mothers' League," in the dispensary of the Philippine General Hospital.

8. WARD WORK IN PEDIATRICS.—Twelve hours a week for four weeks in the first or second semester of the fourth year. Total, 48 hours.

Dr. ALBERT and ASSISTANTS.

In this part of the course each student is assigned to a number of cases in the ward which he studies carefully, marking clinical history, laboratory

examinations, umbar punctures, thoracentesis and intravenous injections under supervision.

9. *INTERNSHIP IN PEDIATRICS*.—One month of internship in the Department of Pediatrics is required for graduation.

Dr. ALBERT and ASSISTANTS.

#### ELECTIVE COURSES

10. *PEDIATRIC JOURNAL CLUB*.—A weekly report on current literature by members of the staff. Open to fourth- and fifth-year students.

11. *GRADUATE COURSES*.—More advanced than the courses required for the degree of M.D. are offered to properly qualified students. The department will arrange two types of courses to meet the needs of the students:

(a) For general practitioners who are constantly called upon to treat infants and children, and who desire to improve their general knowledge of pediatrics and to study recent advances in the subject, (b) For those wishing more detailed instructions and are qualified to undertake special investigations, and those interested in Social-pediatric Work (Child Welfare).

Students will have access to the ward and dispensary when accompanied by one member of the staff. The plan and the details of these courses must be arranged by personal interview with the Head of the Department.

#### OPHTHALMOLOGY, OTOLOGY, RHINOLOGY, AND LARYNGOLOGY

ARISTEO R. UBALDO, A.B., M.D., Professor of Ophthalmology, Otology, Rhinology, and Laryngology and Head of Department

HERMINIO VELARDE, M.D., Associate Professor of Ophthalmology, Otology, Rhinology, and Laryngology

ANTONIO S. FERNANDO, A.B., M.D., Assistant Professor of Ophthalmology, Otology, Rhinology, and Laryngology

VIVENCIO C. ALCANTARA, A.B., M.D., Instructor in Ophthalmology, Otology, Rhinology, and Laryngology

CONRADO D. AYUYAO, M.D., Assistant in Ophthalmology, Otology, Rhinology, and Laryngology

JOSE V. DE LOS SANTOS, A.B., M.D., Assistant in Ophthalmology, Otology, Rhinology, and Laryngology

The instruction in the Department of Ophthalmology, Otology, Rhinology, and Laryngology is given from the second semester of the third year to the fifth year inclusive. The courses are given in the form of lectures, recitations, demonstrations and practical work on actual cases. The numerous cases in the wards and free dispensary eye, ear, nose, and throat clinic offer a great opportunity to students in this branch of medicine. Special emphasis is laid on the diseases common in the Tropics.

1. *OPHTHALMOLOGY*.—Lectures. One hour a week during the second semester of the third year. Total, 16 hours.

Dr. UBALDO.

A general consideration of the anatomy and physiology of the eye is given in the beginning of the course. This is then followed with lectures on the common diseases of the eye and their treatment. Each lecture is supplemented by clinical demonstrations.

2. *REFRACTION AND OPHTHALMOSCOPY*.—Lectures, recitations and practical work. One hour a week during the second semester of the Third Year. Total, 16 hours.

Dr. FERNANDO.

The course in refraction covers the principles of optics; diagnosis and correction of errors of refraction with and without the use of cycloplegic by subjective and objective methods; presbyopia and aphakia; and disturbance of muscular balance of the eyes. The student is trained in the use of the ophthalmoscope retinoscope and other instruments in estimating the error of refraction. They are then taught how to make a systematic examination of the eye for fundus lesions, first in the schematic eye and later in actual patients. In the later part of the course, they are trained to work out actual cases of refraction and to make fundus examination from patients in the hospital and free dispensary.

3. *RHINOLOGY*.—Lectures. One hour a week during the second semester of the third year. Total, 16 hours.

Dr. VELARDE.

The anatomy and physiology of the nose and its accessory sinuses are given in the first part of the course. Lectures and recitations on the common diseases of this organ and its accessory sinuses are combined with clinical demonstrations.

4. *OTOLOGY*.—Lectures. One hour a week during the first semester of the fourth year. Total, 16 hours.

Dr. UBALDO.

The first part of this course consists of a thorough review of the anatomy and physiology of the ear and mastoid. Lectures and recitations on the common diseases of the ear and mastoid are supplemented by clinical demonstrations. Different functional tests on hearing and equilibrium are thoroughly considered.

5. *PARYNGO-LARYNGOLOGY*.—Lectures. One hour a week in the first semester of the fourth year. Total, 16 hours.

Dr. VELARDE.

The first part of this course covers the anatomy and physiology of the pharynx and larynx. The common diseases are then given supplemented by clinical demonstrations. The last part deals with the anatomy and physiology of the esophagus and its common affections particularly foreign bodies.

6. *EYE, EAR, NOSE, AND THROAT CLINIC*.—Clinical demonstrations, practical work, recitations and conferences. This course is given throughout.

(a) *EYE, EAR, NOSE AND THROAT CLINIC*.—Two hours a week in the second semester of the third year. Total, 32 hours.

Drs. FERNANDO, ALCANTARA, and AYUYAO.

The students (in sections) are taught the systematic examinations of the eye and nose.

Practical cases in correlation with the lectures in Ophthalmology and Rhinology are taken. They are also taught practical refractions and ophthalmoscopic examinations. The students are required to have their own head mirrors and if possible their own ophthalmoscopes.

(b) *EYE, EAR, NOSE, AND THROAT CLINIC*.—TWO hours a week in the first semester of the fourth year. Total, 34 hours.

Drs. FERNANDO, ALCANTARA, and AYUYAO.

The students (in sections) are taught the systematic examinations of the ear and pharynx and larynx. Practical cases in correlation with their lectures in otology and pharyngo-laryngology are taken. The different functional tests for hearing and equilibrium are given.

(b) *EYE, EAR, NOSE, AND THROAT CLINIC*.—Two hours a week in the second semester of the fourth year. Total, 32 hours.

Dr. UBALDO and STAFF.

This class is divided into two sections: One section goes to the dispensary and the other to the hospital in rotation every week.

Students are given cases for practical work in the free dispensary.

Selected cases for operations are thoroughly discussed. They are allowed to attend operations and at times they are made to assist.

They are given demonstrations on suspension laryngoscopy, direct laryngoscopy, esophagoscopy and bronchoscopy.

7. *INTERNSHIP IN OPHTHALMOLOGY, OTOLOGY, RHINOLOGY AND LARYNGOLOGY*.—The fifth-year students are required for graduation to serve one month as intern in this Department. They are taught the routine and special clinical and laboratory examinations of patients assigned to them. They are made familiar with history taking, observations and treatment of patients, and are made assistants in the operations.

Dr. UBALDO and STAFF.

8. *GRADUATE COURSE*.—A course of six months is offered to a limited number of graduates desiring to specialize in the diseases of the eye, ear, nose, and throat.

Dr. UBALDO and STAFF.

## GYNECOLOGY

FERNANDO CALDERON, A.B., M.D., Professor of Gynecology and Head of Department

CARMELO M. REYES, M.D., Associate Professor of Surgery and Gynecology

HONORIA ACOSTA-SISON, M.D., Associate Professor of Obstetrics

MARIANO TOLENTINO, M.D., Associate Professor of Gynecology

ANICETO Y. MANDANAS, M.D., Instructor in Surgery and Gynecology

CECILIO D. FRANCO, M.D., Instructor in Surgery

Gynecology was formerly considered a division of Surgery. Due to its expansion and the increased demand for more specialized work, it was deemed necessary to organize it into a separate department. The new Department of Gynecology was inaugurated in 1922.

The courses offered in the department extend throughout the third, fourth, and fifth years. The required subjects are: Principles of Gynecology and Gynecological Dispensary in the third year; Gynecological Clinic and Ward Work in the fourth year, and Internship in the fifth year. These courses are given in the form of lectures, recitations, demonstrations, and practical work. The latter work is given in the Philippine General Hospital and the Free Dispensary where there is a great number of instructive cases.

### THIRD YEAR

1. *GYNECOLOGY*.—Two hours a week during the second semester. Total, 32 hours.

Dr. CALDERON.

Lectures illustrated with lantern slides, recitations, and demonstrations covering in general the principles and practice of gynecology.

2. *GYNECOLOGICAL DISPENSARY*.—Two hours a week during the second semester. Total, 32 hours.

Dr. TOLENTINO.

Demonstration and discussion of cases, and practical work in pelvic examination, diagnosis and nonoperative treatment of gynecological conditions. Given in sections.

### FOURTH YEAR

3. *GYNECOLOGICAL CLINIC*.—Two hours a week during the first semester. Total, 34 hours.

Dr. CALDERON and ASSISTANTS.

This part of the course is conducted in the amphitheater of the operating room. Students are allowed to administer anaesthetics and assist in operations in this clinic.

4. *WARD WORK IN GYNECOLOGY*.—Given with the ward work in Surgery.

Dr. CALDERON and ASSISTANTS.

Given in sections. This consists of practical work in the ward where the students have the opportunity to study gynecological cases individually. Students taking this course are required to write histories, make all necessary examinations, and observe the cases assigned to them while in the hospital.

*GYNECOLOGICAL PATHOLOGY*.—An elective course for special students. Total, 34 hours; first semester.

Dr. REYES.

### FIFTH YEAR

*INTERNSHIP IN GYNECOLOGY*.—One month intern work in this Department is required for graduation.

Dr. CALDERON and ASSISTANTS.

### LEGAL MEDICINE

SIXTO DE LOS ANGELES, A.B., M.D., Professor of Legal Medicine, and Head of Department

ANASTACIA VILLEGAS, A.B., M.D., Assistant Professor in Legal Medicine

PABLO M. ANZURES, A.B., M.D., Instructor in Legal Medicine

Instruction in the Department of Legal Medicine is planned to combine the correlative educational activities pertaining to medico-legal matters in the Colleges of Law and Medicine and in the Philippine General Hospital, including the Schools of Pharmacy, Dentistry, and Nursing. Arrangement is made in conformity with the provisions of the law so as to facilitate instruction and research work for the University of the Philippines as well as the activities related to the medico-legal services to and investigations for the Department of Justice.

In the College of Medicine, the Department is in charge of giving a total of eighty-two (82) hours course of didactic and practical instruction to the fourth-year medical students, embracing the subject matter of Legal Medicine, Medical Economics, Ethics and History of Medicine. Instruction is given in accord with the purpose of preparing the medical students to become duly educated practitioners, not specialists in any branch of legal medicine, but culturally and adequately trained along their line, so as to enable them sufficiently to understand and to solve the corresponding medico-legal problems with which they are likely to be confronted in their daily practice, and to acquaint them with their professional duties and rights as well as with their relationship with the law and the administration of justice.

#### **LEGAL MEDICINE FOR UNDERGRADUATE MEDICAL STUDENTS**

(a) *FORENSIC MEDICINE*.—Two hours a week during the first semester. Total, 34 hours.

Professor DE LOS ANGELES.

This part of the course consists of lectures, covering mainly the following subjects:

- (1) Medico-legal aspect of death and the medico-legal examination of the dead body.
- (2) The medico-legal features of physical injuries, such as those related to wounds, thermal and electrical injuries, starvation, the violent interference with the process of respiration and the state of unconsciousness.
- (3) Questions relative to sexual status and functions, sexual disabilities and sexual crimes.
- (4) Medico-legal relations of pregnancy, delivery, legitimacy and civil personality.
- (5) Criminal abortion, birth control and infanticide.
- (6) Questions on medico-legal identification and medico-legal examination of blood and of different stains.
- (7) Psychiatry in its medico-legal relations.
- (8) Criminal anthropology.
- (9) Forensic toxicology.

(b) *LEGAL MEDICINE, PRACTICAL COURSE*.—Two hours a week during the second semester. Total, 32 hours.

Drs. DE LOS ANGELES, VILLEGRAS, and ANZURES.

This part of the course consists of laboratory work supplemented by lectures and conferences with practical demonstrations designed to furnish to medico-legal students a practical training in the general subjects of Legal Medicine, including medico-legal autopsies, preparation of medico-legal protocols and reports, laboratory examination of medico-legal speci-

mens and forensic toxicological investigations from actual cases and from laboratory animals. Special procedures are followed in the respective technics used to meet the peculiarities of the medico-legal problems involved, so as to enable the students to give practical medico-legal interpretations of facts and results obtained on the cases in hand. The materials are obtained from the cases referred to the department by the City Fiscal's Office, the City Department of Police, the Insane Asylums, the Bilibid Prison, the Philippine General Hospital, the City Morgue, etc.

Under the supervision of the Department of Legal Medicine, by special arrangement with the Clinical Departments concerned in the Philippine General Hospital, the students are given opportunity to observe and follow interesting medico-legal cases beginning from their confinement to the Hospital until death or until they are disposed of finally in the courts. In this connection, on request of the Head of the Department of Legal Medicine, the students may be excused in rotation from other subjects to study and report interesting medico-legal cases which are accessible only at hours other than those scheduled for the course in legal medicine.

During this course conferences are regularly held once a month with the medico-legal students of the fourth-year class of the College of Law. This joint class is also given practical training in the conduct of judicial investigations on medico-legal cases in the form of trial practice, thru special arrangement with the College of Law.

(c) *MEDICAL JURISPRUDENCE, ECONOMICS, ETHICS AND HISTORY OF MEDICINE*.—One hour a week during the second semester. Total, 16 hours.

Drs. DE LOS ANGELES and VILLEGRAS.

This part of the course consists of lectures which embraces, so far as possible, the following subjects:

- (1) Relation of medicine to law in general.
- (2) Legislative regulation of the practice of medicine.
- (3) Contractual relation of the medical profession and the legal responsibilities and duties of physicians.
- (4) Medical malpractice.
- (5) Right of physicians to compensation.
- (6) Medical evidence, methods of judicial investigations and procedure in courts of justice.
- (7) The legal aspect of public health service and the official positions of physicians.
- (8) Medico-legal relations of wills and life insurance.
- (9) Medical economics and ethics.
- (10) History of medicine.

Textbooks: (For the whole course) Angeles, Sixto de los, Legal Medicine, with reference to the Philippine Law and the Reports of the Philippine Supreme Court; Bradford & Roth, History of Medicine.

Collateral reading: Thoinot, L., Tratado de Medicina Legal; Withaus and Becker, Medical Jurisprudence, Forensic Medicine, and Toxicology; Angeles, S. de los, "Estudios sobre Antropología Criminal en las Islas Filipinas," Relly, T. F., Building of a Profitable Practice; Cathell, the Physician Himself.

**ELECTIVE COURSE**

*ADVANCED COURSE IN LEGAL MEDICINE.*—One hour didactic and two laboratory hours a week during the second semester. Total, 48 hours.

This is an elective advanced didactic and laboratory course in legal medicine, including criminal anthropology, designed to give special training to graduates and senior medical students who wish to have a greater familiarity with or to improve their general knowledge on legal medicine.

In addition each student is required to submit at the end of the course a thesis based upon his own original investigation or research on any branch of the subject. The thesis must be accompanied by an accurate description of the technic followed and exact reference to publications quoted so that due verification may be facilitated. It must be of such a character as to be of credit to the Department of Legal Medicine if published. In this way, it is intended to impress upon the students the methods of investigation and the most important acts in the various divisions of the subject, as well as to guide those who are specially interested along a definite line of inquiry. Every facility will be afforded to those who are taking this course and making special research work on any branch of the subject.

Drs. DE LOS ANGELES, VILLEGRAS, and ANZURES.



## The School of Dentistry

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### ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College of Medicine:* Dr. FERNANDO CALDERON

*Director of the School:* Dr. DOMICIANO J. SANDOVAL

*Secretary of the School:* Dr. ELADIO R. ALDECOA

### CHAIRMEN OF STANDING COMMITTEES

*Admission, Standing, and Promotion:* Dr. DOMICIANO J. SANDOVAL

*Catalogue and Curriculum:* Dr. ELADIO R. ALDECOA

### BUSINESS DIRECTORY

**OFFICE OF THE DIRECTOR:** The office of the Director is located on the first floor of the Free Dispensary Building, Room 9, Philippine General Hospital, on Taft Avenue.

**TELEPHONE CONNECTION:** Tel. 1380.

**CORRESPONDENCE:** Address to the Director, School of Dentistry, College of Medicine, Manila, P. I.

## FACULTY OF INSTRUCTION

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**DOMICIANO J. SANDOVAL, A.B., D.D.S.,**

Associate Professor of Operative Dentistry and Clinical Dentistry, Dental Anatomy and Dental Pathology, and Director of the School.

**ARTURO GARCIA, A.B., M.D.,**

Professor of Anatomy, Head of Department.

**LIBORIO GOMEZ, A.B., M.D., Ph.D.,**

Professor of Pathology and Bacteriology, Head of Department.

**AUGUSTUS P. WEST, A.B., Ph.D.,**

Professor of Chemistry, Head of Department.

**ISABELO CONCEPCION, M.D.,**

Associate Professor of Physiology.

**SIXTO DE LOS ANGELES, A.B., M.D.,**

Professor of Dental Jurisprudence, History, Ethics, and Economics, Head of Department.

**JOSE EDUQUE, M.D.,**

Professor of Oral Surgery, Head of Department.

**DANIEL DE LA PAZ, M.D.,**

Professor of Pharmacology, Head of Department.

**LUIS GUERRERO, M.D.,**

Professor of Tropical Medicine and Parasitology, Head of Department.

**RICARDO FERNANDEZ, A.B., M.D.,**

Professorial Lecturer on Dental Radiology.

**S. FRANCISCO TECSON, A.B., D.D.S.,**

Professorial Lecturer on Exodontia and Dental Metallurgy.

**JOSE N. LERMAN, D.D.S.,**

Professorial Lecturer in Orthodontia.

**HILARIO LARA, M.D., D.P.H., C.P.H.,**

Associate Professor of Hygiene, Head of Department.

**JOSE I. DEL ROSARIO, A.B., Lic.Pharm., M.S.,**

Associate Professor of Chemistry.

**MARIA PAZ MENDOZA-GUAZON, M.D., D.T.M.,**

Associate Professor of Pathology and Bacteriology.

**AMPARO CONCHA-BRILLANTES, M.D.,**

Assistant Professor of Hygiene.

**EMILIO BULATAO, M.D.,**

Assistant Professor of Hygiene.

**EMILIO BULATAO, M.D.,**  
Assistant Professor of Physiology.

**CARLOS MONSERRAT, A.B., M.D.,**  
Assistant Professor of Pathology and Bacteriology.

**LAMBERTO LEIVA, M.D., D.T.M.,**  
Associate Professor of Parasitology.

**WALFRIDO DE LEON, A.B., M.D., D.T.M.,**  
Assistant Professor of Pathology and Bacteriology.

**ROMULO GUEVARA, M.D.,**  
Assistant Professor of Pharmacology.

**FRANCISCO QUISUMBING, A.B., M.A., Ph.D.,**  
Assistant Professor of Chemistry.

**NARCISO CORDERO, M.D.<sup>1</sup>**  
Assistant Professor of Physiology.

**JOSE JIMENEZ, A.B., Pharm.B.S.,**  
Instructor in Chemistry.

**ANICETO Y. MANDANAS, M.D.,**  
Instructor in Surgery.

**RAMON MACASAET, A.B., M.D.,**  
Instructor in Hygiene.

**WENCESLAO PASCUAL, M.D.,**  
Instructor in Physiology.

**MARCELINO LIMSON, M.D.,**  
Assistant Professor in Anatomy.

**ANASTACIA VILLEGRAS, A.B., M.D.,**  
Assistant Professor in Legal Medicine, Medical Economics, and  
Dental History.

**ELADIO R. ALDECOA, D.D.S., D.M.D.,**  
Assistant Professor in Operative Technics, Prosthetic Dentistry,  
Clinical Crown and Bridge and Inlay Work, Acting Head of  
Prosthetic Department.

**JOSE ENCARNACION, M.D.,**  
Instructor in Anatomy.

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<sup>1</sup> On leave.

## **THE SCHOOL OF DENTISTRY**

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### **PREFACE**

The School of Dentistry as a division of the College of Medicine is an integral part of the University of the Philippines. This connection gives its students all the advantages and privileges enjoyed by students from other departments of the University.

From the time of its establishment the School of Dentistry has kept abreast with the better known dental schools of the United States. The large and well equipped laboratories of Chemistry, Anatomy, Pathology, Physiology, Bacteriology, etc., of the University of the Philippines, together with the abundant clinical facilities of the Dental Clinics of the Philippine General Hospital, offer to students wishing to enter the Dental Profession special opportunities not to be surpassed anywhere in the Philippine Islands.

A three-year course and a four-year course leading to the degree of Doctor of Dental Surgery and Doctor of Dental Medicine, respectively, are offered and special emphasis is given to a sound training in the basic fundamental medical sciences connected with dentistry, and so essential to modern dental practice.

### **ADMISSION REQUIREMENTS**

The requirement for admission to the School of Dentistry is 14 high school units represented by graduation from a high school recognized by the Philippine Government or by the Government where the school is located or by a university of recognized standard. Applications for admission to the first-year class, should be made directly to the Director of the School of Dentistry not later than June 1st of each year, accompanied by University form No. 1 properly certified. Such application will be referred through the Committee on Admission of the School to the Faculty, School of Dentistry, for definite action, and will then be certified to the Secretary of the University for registration.

All applicants must pass a physical examination before being admitted and must also have the ability to speak and write good English.

### **ADMISSION TO ADVANCED STANDING**

Applicants for admission to advanced standing should forward to the Director of the School of Dentistry before the opening of the school year, an official certificate from the College or University already attended, which should be recognized by the Philippine Government, or by the government where the school is located or by a university of recognized standard, show-

ing (1) honorable dismissal, (2) time of attendance, and (3) amount, and kind of work performed and grade obtained. Such certificate must be accompanied by the catalogue of the institution for the years attended, and must be passed upon the professors concerned and recommended by the Committee on Admission, Standing and Promotion to the Faculty of the School. No advanced credit shall be granted in any course unless fully equivalent to the work as given in the School of Dentistry, except by examination and only on authority granted by the Faculty of the School of Dentistry.

### SPECIAL STUDENTS

Any person satisfying the admission requirement as stated above may be admitted to courses in the school as special students not candidates for a degree only on recommendation of the Committee on Admission, Standing and Promotion and the approval of the Department Head and the Faculty of the School, and on the payment of the necessary fees.

Graduates in dentistry desiring to take undergraduate courses not leading to graduation, may be admitted as special students under the same conditions set forth in the preceding paragraph.

### FEES

The following fees (deposit, first semester, tuition and laboratory fees included) are charged in the School of Dentistry:

**First year—**

First semester .....	.....	₱61
Second semester .....	.....	41

**Second year—**

First semester .....	.....	46
Second semester .....	.....	41

**Third year—**

First semester .....	.....	31
Second semester .....	.....	31

**Fourth year—**

First semester .....	.....	26
Second semester .....	.....	26

### EXAMINATIONS

Examinations will be held at the end of each semester, or upon the completion of each course.

For the removal of conditions, students shall have the privilege of taking one examination during the week preceding the opening of the following session or any other examination required by the faculty without the payment of a fee. Examinations may be held at other times only by special permission of the faculty and on payment of ₱10, provided that all conditions must be made up before the opening of the following session. Only students who are in residence will be allowed to take examination for removal of conditions.

Students who have been absent from the semester examination may, at the discretion of the Dean and the heads of the departments concerned, be admitted to subsequent examination in such work, but will be required to pay the fee for special examination.

### ATTENDANCE

Students must be in actual attendance in the School within the first week of each annual session and thereafter, except in exceptional cases to be dealt with by the Faculty on recommendation of the Committee on Admission, Standing and Promotion.

Leave to be absent or an excuse for absence, does not in any case absolve the student from doing the work covered by his class during his absence to the satisfaction of the instructor in charge.

Students who are absent from their lecture and recitation clinics or laboratory hours more than 20 per cent will be automatically dropped from the class and will be given a grade of "5" at the end of the course; except that when such absences are properly justified, the Faculty might extend to them the privilege of making up their time deficiency before the final examination in the subject.

Leave of absence when justified may be granted by the Faculty for not more than ONE YEAR at a time and only upon recommendation of the Committee on Admission, Standing and Promotion.

Students who discontinue any of their work without formal leave of absence, do so at the risk of having their registration privileges curtailed or entirely withdrawn.

### HONORABLE DISMISSAL

Honorable dismissal, indicating that the student who in good standing has voluntarily severed his connection with the University, should be sought by written petition to the proper faculty.

### GRADES OF SCHOLARSHIP, PROMOTIONS, CONDITIONS, FAILURES, AND WITHDRAWALS

1. The results of the work in any given course, shall be certified by the Instructor in terms of the five grades (1, 2, 3, 4, and 5) as adopted by the University, and whose valuations are given on page 44 of this catalogue.

2. Students who have obtained the grades of "2" or "3" will not be allowed a second examination for the purpose of improving such grade.

3. Students who have failed to perform any of the allotted work in a given course, will be reported as having done their work "Incomplete" and unless the deficiency is made up within a year, such a grade will be converted into a failure ("5").

4. An unexcused absence from a regular examination is construed as a failure therein.

5. A grade of "4" shall indicate that the student receiving such grade is conditioned in the subject in which the mark was received. He may

be given a reëxamination in the subject matter of the course, or be required to do additional work or both, at the discretion of the instructor in charge.

6. If the study in which the student is conditioned be a continuous one, the instructor in charge may, at his discretion, excuse the student from reëxamination and allow him to obtain credit by passing his study successfully during the following semester. If such a student fails in the work of both semesters, he shall be regarded as having failed in the work of both semesters.

7. The grade of "3" is the highest mark which any student may receive as the result of reëxamination for the removal of condition.

8. No grade of "4" shall be given in the second semester's final examination for the senior year.

9. The failure to obtain university credit in a subject in which a grade of "4" has been received, before the beginning of the next academic year, shall mean that the grade of "4" has become a grade of "5," except when due to a justified and prolonged serious illness or unavoidable detention, to be determined by the faculty on recommendation of the Committee on Admission, Standing and Promotion and except in cases governed by Rule 6.

10. A grade of "5" means a failure, and the student receiving such a grade shall repeat the subject with the next succeeding class or classes.

11. A regular enrolled student who has passed all his prescribed subjects or who has removed all his conditions before the beginning of the following academic year will be advanced to and enrolled in the next higher class.

12. Any student registered in all of the regular subjects of any year of the prescribed course cannot take any subject prescribed in an advanced year.

13. First year students who fail in the two fundamental subjects (Chemistry, Prosthetic technique, Prosthetic Dentistry and Operative Technic) will be allowed to matriculate in any subjects of the higher classes. If they fail only in either of these subjects, they may be allowed to register in subjects of the second year which in the discretion of the Committee on Admission, Standing, and Promotion will be of an equivalent number of hours and have no time or prerequisite conflicts.

14. Irregular students will be classified in the year where they take more subjects.

15. Students who fail twice consecutively in any two of the following fundamental subjects (Anatomy, Chemistry, Pathology, Bacteriology, Crown and Bridge, Prosthetic Technique, Operative Dentistry, Prosthetic Dentistry, Clinical Dentistry, Oral Surgery, and Anaesthesia) will be dismissed from the School on recommendation of the Committee on Admission, Standing, and Promotion.

16. Any student may be required to withdraw from the School at any time whenever in the opinion of the Faculty it is manifest that he is incompetent for his work, or for any reason he is unfit to continue his course.

17. Special cases not provided in the foregoing rules and regulations should be dealt with by the Faculty individually on recommendation of the Committee on Admission, Standing and Promotion.

**MILITARY SCIENCE**

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

**GRADUATIONS**

The degree of D.D.S. will be conferred upon students regularly enrolled in the School of Dentistry on fulfillment of the following conditions:

1. He must be 21 years of age, of good moral character and must have complied with the requirements for admission to the School;
2. He must have completed satisfactorily all the studies prescribed in the three-year curriculum of the school or their equivalent in an other approved school, in which case, the last year must have been taken in this school.

The degree of D.D.M. will be conferred upon students who have been regularly enrolled in this school or in some other institution of equivalent standards, on fulfillment of the following conditions:

1. He must be 21 years old, of good moral character, and must have satisfied all requirements for admission to this School.
2. He must have completed all the studies prescribed in the fourth year of the four-year curriculum of this school in addition to the completion of the three-year course leading to the degree of D.D.S.

**GRADUATION WITH HONORS**

Graduation *with honors* or *with highest honors*, will be granted subject to the same regulations as obtain at present in the College of Medicine.

**LIBRARY FACILITIES**

The library of the Bureau of Science is open to all members of the teaching staff and all students of the School of Dentistry. In addition to files of a number of the leading special dental journals, this library has a large collection of general medical periodicals in which will be found a record of the progress of dentistry. The library also has all the leading periodical indexes needed for the consultation of dental literature.

**DENTAL CLINICS**

The dental clinics are open every day from 7.30 to 11.30 a. m., and 1 to 4 p. m., on Saturdays from 7.30 a. m. to 12.30 p. m. Abundance of clinical materials is always available. It is under the immediate supervision of a Dentist from the Staff of the Philippine General Hospital; and the students practicing therein are under the close supervision of the members of the faculty of the School.

**REQUIREMENTS**

The students are required to furnish their own textbooks, instruments and tools used in connection with the laboratory and clinical courses. A list of these requirements is issued by each department. Students who do not have the necessary tools can not expect to accomplish satisfactory work.

**COURSES OF STUDY****THE THREE-YEAR COURSE***Leading to the degree of Doctor of Dental Surgery (D.D.S.)***FIRST YEAR**

<i>First Semester</i>	<i>Hours</i>	<i>Second Semester</i>	<i>Hours</i>
Chemistry 25.....	153	Chemistry 25.....	153
Prosthetic Technics.....	162	Prosthetic Dentistry.....	216
Dental Anatomy.....	36	Dental Anatomy.....	54
Dental Drawing.....	36	Operative Techniques.....	144
Dental Protozoology.....	24	Mouth Hygiene and Dental Prophylaxis.....	16
English 1.....	54	English 1.....	54
Total.....	465	Total.....	637

**SECOND YEAR**

<i>First Semester</i>	<i>Hours</i>	<i>Second Semester</i>	<i>Hours</i>
Anatomy (General).....	144	Anatomy (Head and Neck).....	144
Crown and Bridge.....	216	Pharmacology.....	80
Physiology.....	54	Bacteriology.....	144
Orthodontia.....	54	Operative Dentistry.....	144
Histology.....	140	Crown and Bridge Clinics.....	96
Dental Metallurgy.....	17	Casting and Inlay Technics.....	48
Total.....	625	Total.....	656

**THIRD YEAR**

<i>First Semester</i>	<i>Hours</i>	<i>Second Semester</i>	<i>Hours</i>
Pathology (General).....	192	Prosthetic Clinic.....	108
Operative Clinic.....	144	Crown and Bridge Clinics.....	108
Principles of Surgery.....	54	Operative Clinic.....	144
Dental Diseases.....	72	Oral Surgery and Anaesthesia.....	108
Dental Jurisprudence.....	17	Dental Medicine.....	32
Prosthetic Clinic.....	108	Dental Pathol. Clinic.....	72
Crown and Bridge Clinics.....	109	Dental Radiology.....	36
Total.....	695	Orthodontia Clinic.....	53
		Dental History, Ethics, and Economics.....	18
		Total.....	679

**FOURTH YEAR***Additional year to the three-year course leading to the degree of Doctor of Dental Medicine*

<i>First Semester</i>	<i>Hours</i>	<i>Second Semester</i>	<i>Hours</i>
Adv Course in Crown and Bridge Work.....	162	Operative Clinic.....	162
Ceramic Dentistry.....	162	Prosthetic Clinic.....	162
Operative Clinic.....	162	Crown and Bridge Clinic.....	162
Prosthetic Clinic.....	162	Casting Full and Partial Denture .....	162
Hygiene and Sanitation.....	36	Comparative Dental Anat.....	48
Parasitology.....	24	Total.....	696
Total.....	708		

## ORGANIZATION

The subjects required by this School are grouped into three distinct divisions; namely, Liberal Arts subjects, Medical subjects, and Dental subjects.

*Liberal Arts subjects.*—Chemistry and English with a total of 414 hours are given in the College of Liberal Arts in the department concerned; but the students register as dental students in the School of Dentistry, College of Medicine, University of the Philippines.

*Medical subjects.*—All the medical subjects that are required in the curriculum are given in the College of Medicine under the corresponding departments; but the students are registered as dental students. There are twelve medico-dental subjects with a total of 1,155 hours, that are given in connection with the course. They are (1) Anatomy (2) Histology (3) Pathology General (4) Physiology (5) Pharmacology (6) Oral Surgery and Anaesthesia (7) Principle of Surgery (8) Bacteriology (9) Dental Protozoölogy, (10) Dental Radiology (11) Dental Jurisprudence (12) Dental History, Ethics, and Economics.

*Dental subjects.*—All the dental subjects are distributed into two main departments into which the school is divided; namely, the Department of Operative and Clinical Dentistry and the Department of Prosthetic Dentistry and Crown and Bridge work. Each department has the following subjects:

### DEPARTMENT OF OPERATIVE AND CLINICAL DENTISTRY

	Hours
Operative Clinic .....	288
Operative Technics .....	144
Operative Dentistry .....	144
Orthodontia .....	108
Dental Anatomy .....	90
Dental Pathology Clinic.....	72
Dental Diseases .....	72
Dental Medicine .....	32
Mouth Hygiene and Dental Prophylaxis.....	16
 Total .....	 966

### DEPARTMENT OF PROSTHETIC DENTISTRY AND CROWN AND BRIDGE WORK

	Hours
Crown and Bridge Clinic.....	312
Prosthetic Dentistry .....	216
Crown and Bridge (Technics).....	216
Prosthetic Clinic .....	216
Prosthetic Technics .....	162
Casting and Inlay Technics.....	48
Dental Drawing .....	36
Dental Metallurgy .....	17
 Total .....	 1,223

## DEPARTMENTS OF ENGLISH, CHEM. AND ANATOMY 315

Total of all subjects given in both departments is 2,189 hours.

These two departments have earned last year ₱2,085.45 as fee of the practical work done by the students.

### DEPARTMENT OF ENGLISH

English 1 (Engl 1); *COMPOSITION*.—A course intended to perfect students in the mechanics of writing. The work consists in the study of principles and correct forms, in the writing and revising of themes, and in collateral reading.

Prescribed for all regular first-year students in the Colleges of Liberal Arts, Education, Engineering and Pharmacy, Dentistry and prerequisite to all other courses in English.

3 hours a week (Class); throughout the year, credit 6 units.

H. P. SCOTT, Head, Department of English, and his assistants, College of Liberal Arts.

### DEPARTMENT OF CHEMISTRY

*CHEMISTRY 25* (General and Inorganic Chemistry).—A course given in the College of Liberal Arts and designed primarily for dentistry students. The course covers the essentials of elementary general inorganic college chemistry. Special attention is given to the fundamental principles of the subject and the chemistry of the metals. The latter part of the course is devoted exclusively to a short course in qualitative analysis.

Lectures, recitation, and laboratory work.

Lectures: M-W-F, 10:30-11:30.

Laboratory: Sec. A, B, C.; T-Th, 1-4.

Sec. D, E, F.; M-F, 1-4.

Sec. G, H, I.; W-S, 1-4.

9 hours a week (6 Lab, 3 Class); throughout the year, 10 units.

Dr. QUISUMBING, Mr. OCAMPO, and Mr. MARTIN.

### DEPARTMENT OF ANATOMY

*GENERAL ANATOMY*.—This course is given by means of lecture-demonstrations and actual abbreviated dissection of the trunk and extremities, for the purpose of giving students a general knowledge of the human body.

Second year, first semester, 144 hours.

Drs. LIMSON and ENCARNACION.

*HISTOLOGY*.—This course is intended to give the student a good knowledge of the minute structure of the main tissues and organs of the human body. Gross and microscopic study of organs by means of lectures, recitations, and laboratory work. Over 100 human microscopic sections are loaned to each student from the Department collections.

Second year, first semester, 140 hours.

Drs. LIMSON and ENCARNACION.

*ANATOMY OF THE HEAD AND NECK*.—The head and neck are studied in detail by means of lecture-recitations and actual dissection. A complete study of the osteology of the head and neck is taken up in the course.

Second year, second semester, 144 hours.

Drs. LIMSON and ENCARNACION.

Prof. ARTURO GARCIA, Head of the Department.

**DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY**

**BACTERIOLOGY 3.**—Elementary Bacteriology (required). Work in bacteriology will be given in the second semester of the second year in the laboratories of the Department of Pathology and Bacteriology of the College of Medicine. This is the same course given the third year students of the School of Pharmacy. It will cover the essentials of general bacteriology; including sterilization, bacteriological technique, morphology, cultural characteristics of the more important pathogenic bacteria and fungi and a brief consideration on the principles of infection and immunity. It is intentionally not as extensive or complete a course as that given the medical students. Six hours laboratory work and three hours didactic instruction a week.

Second year, second semester, 144 hours.

Assistant Professor MONSERRAT and Assistants.

**PATHOLOGY 1.**—General Pathology (required.) The work in pathology is given in the first semester of the third year in the laboratories of the Department of Pathology and Bacteriology of the College of Medicine. It consists of the first three months of the course given to the second year medical students, the dental and medical classes working together. The work covers the elements of general pathology including circulatory disturbances, injury, repair, inflammation, the various bacterial infections and a consideration of tumors. Twelve hours laboratory work and four hours lectures or recitations a week for 12 weeks.

Third year, first semester, 192 hours.

Drs. GOMEZ, MENDOZA-GUAZON, SANTA CRUZ, and Assistants.

**DEPARTMENT OF PHYSIOLOGY**

**PHYSIOLOGY.**—Lecture-recitations and experiments on the physiology of muscle-nerve circulation, respiration, central nervous system, secretion, excretions, alimentary tract, and ductless glands.

One hour lecture-recitation and two hours laboratory, twice a week, during the third semester. Total (didactic 32, laboratory 64), 96 hours.

Second year, first semester.

Drs. BULATAO, CONCEPCION, and PASCUAL.  
Professor CONCEPCION, Head of the Department.

**DEPARTMENT OF PHARMACOLOGY**

**PHARMACOLOGY.**—Lectures and recitations on the actions and uses of drugs which are of importance to students of dentistry, and laboratory work in elementary pharmacy, pharmacodynamics, and prescription writing. Five hours per week during the sixth semester. Total (didactic 32, laboratory 48), 80 hours.

Second year, second semester.

Assistant GUEVARA.

Prof. D. DE LA PAZ, Head of the Department.

**DEPARTMENT OF SURGERY**

**PRINCIPLES OF SURGERY** (Dentistry).—This is a course on the main principles of surgery applicable to Dental Operation work given by lectures, recitations, and demonstration.

Third year, first semester, 51 hours.

Dr. MANDANAS.

**ORAL SURGERY AND GENERAL ANAESTHESIA.**—This is a course covering instruction about oral surgery technique, anaesthesia wounds, hemorrhages, shock, new-growth, constitutional diseases, and plastic operation upon the palate and jaw, dislocation and fractures of the maxillae. In the clinics of the Free Dispensary, Philippine General Hospital, illustrative cases will be shown. The students are also expected to attend such operations at the Amphitheater of the Philippine General Hospital.

Third year, second semester, 102 hours.

Dr. MANDANAS.

Professor EDUQUE, Head of the Department.

**DEPARTMENT OF PHYSICAL THERAPY**

**RADIOLOGY.**—The course comprises, besides the general principles of electricity and roentgenology as given to the medical students, the following matter:

Requisites of the dental X-ray laboratory.

Technic of dental and oral roentgenography.

Correct exposure and development of films and X-ray plates.

Anatomy of the teeth and jaws with special reference to roentgenogram interpretation.

Pathology in relation to dental roentgenology.

Correlation of clinical findings with roentgenographic examination.

Roentgenographic findings about the teeth and jaws in relation to prognosis and treatment.

Indications for the use of X-rays in the practice of dentistry.

Interpretation of dental and oral roentgenograms.

Aside from the practical work given to the students of either course, they are given training in the interpretation of the roentgenograms that the Philippine General Hospital keeps for teaching purposes.

Third year, second semester, 34 hours.

Professorial lecturers R. FERNANDEZ and Dr. J. CASTILLO.

Professor FERNANDEZ, Head of the Department.

**DEPARTMENT OF PARASITOLOGY**

**PARASITOLOGY 1B** (Dental Protozoölogy)—Required of third year dental students).—It consists of didactic lectures and laboratory work from the beginning of January till the end of the semester. The course will consist of a brief general consideration of the protozoa as a group followed by an intensive study of protozoa found in the oral cavity such as the entamoabae, spirochaetes, and trichomonas. In the laboratory the students will be trained in the various practical and useful methods

of studying and identifying the more important and commonly encountered parasitic species both in fresh and stained preparations. Total (lecture 10 and laboratory 14), 24 hours.

Fourth year, second semester.

Assistant Professor LEIVA.

Professor GUERRERO, Head of the Department.

#### DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE

##### HYGIENE FOR DENTAL STUDENTS

*HYGIENE 1D* (Principles of Hygiene and Preventive Medicine).—Given to fourth-year graduate dental students during the first semester, four hours twice a week. Total, 136 hours.

The course consists of lectures, practical demonstrations, oral hygiene survey, and laboratory exercises. In the general lectures and demonstrations, dentals join the medical students but some of the laboratory work and practical field demonstrations are modified. For some particulars see description of Hygiene 1 in the Catalogue of the College of Medicine. Nutrition as it affects the teeth is emphasized. Diseases whose causative organisms gain entrance into the body through the mouth and details of their prevention are taken up.

Associate Professor and Head, H. LARA; Assistant Professor AMPARO CONCHA-BRILLANTES; Instructors RAMON MACASAET and CRISOSTOMO ORTIGAS.

#### DEPARTMENT OF OPERATIVE AND CLINICAL LABORATORY

*DENTAL ANATOMY*.—This course is intended to give the student a detailed knowledge of the teeth (both permanent and temporary), including their origin, growth eruption, morphology, and structures, by means of lectures, recitations and laboratory work. The students are required to dissect, carve, and model the different teeth. A good supply of charts and models is always available for students' use.

First year, first semester, 36 hours.

First year, second semester, 54 hours.

Associate Professor SANDOVAL and Assistant Professor DEL ROSARIO.

##### OPERATIVE TECHNICS.—

First year, second semester, 144 hours.

Assistant Professor DEL ROSARIO.

##### ORTHODONTIA.—

Second year, first semester, 54 hours.

Third year, second semester, 53 hours.

Dr. LERMA.

##### OPERATIVE DENTISTRY.—

Second year, second semester, 144 hours.

Associate Professor SANDOVAL and Assistant Professor DEL ROSARIO.

##### MOUTH HYGIENE AND DENTAL PROPHYLAXIS.—

First semester, second year, 16 hours.

Dr. TECSON.

*OPERATIVE CLINIC 1*.—This course embraces all kinds of practical work found in the dental clinic of the Free Dispensary, Philippine General

Hospital. The students are required to do certain amount of practical work such as inlays, root canal treatment, and all kinds of fillings.

Third year, throughout the year, 288 hours.

Associate Professor SANDOVAL and Assistant Professor DEL ROSARIO.

*OPERATIVE CLINIC 2.*—This is a post-graduate course leading to the degree of D.M.D. A more extensive study of the treatments of various diseases of the teeth and their contiguous tissues.

Fourth year, throughout the year, 324 hours.

Associate Professor SANDOVAL and Assistant Professor DEL ROSARIO.

*DENTAL DISEASES AND DENTAL PATHOLOGY CLINICS.*—In this course various diseases of the teeth and associate parts are carefully considered. It is taught by lectures, recitations, and clinical demonstrations.

Third year, throughout the year, 144 hours.

Associate Professor SANDOVAL.

### **DENTAL MEDICINE**

This is a lecture course embracing most of the useful dental medicines and drugs which are used to-day.

Third year, second semester, 32 hours.

Dr. TECSON.

### **DEPARTMENT OF PROSTHETIC DENTISTRY AND CROWN AND BRIDGE WORK**

#### **CROWN AND BRIDGE WORK**

Lecture, recitation, and laboratory technique.

Lecture and recitation, one hour a week.

Laboratory work, eleven hours a week.

Second year, first semester, 216 hours (12 hours a week).

This course covers the fundamental principles in crown and bridge work, giving special attention to the following:

Principles of soldering and properties of metals.

Fundamental principles governing the construction of crowns and bridges.

Technics of constructing shell crown, Richmond crown; cast base crown; standard or Webb crown; Goslee crown; Carmichael Crown; McVoyle crown; and inlay attachment.

Technique of bridge construction using the above crowns and inlay as abutment pieces.

Assistant Professor ALDECOA and Acting Head of the Department,  
Dr. VILLA.

#### **PROSTHETIC TECHNICS**

Lecture, recitation, and laboratory work.

Lecture and recitation, one hour a week.

Laboratory work, eight hours a week.

First year, first semester, 162 hours (9 hours a week).

This course is intended to give the student a preliminary knowledge of vulcanite plate work. It covers the following studies:

- Study of different laboratory tools and equipment.
- Principles of occlusion and arrangement of natural teeth.
- Properties of materials used.
- Methods of taking impression and making model or cast.
- Setting of the teeth with reference to occlusion only.
- Principle of vulcanization.
- Finishing and polishing.

Assistant Professor ALDECOA and Dr. V. VILLA.

#### PROSTHETIC DENTISTRY

Lecture, recitation and laboratory work.

Lecture and recitation, one hour a week.

Laboratory work, eleven hours a week.

First year, second semester, 262 hours (12 hours a week).

This course covers a review of the work done in prosthetic technics, and in addition the following are thoroughly covered:

- Practical demonstration of impression taking on the manikin by the student and instructor.
- Articulation giving emphasis to working and balancing bites.
- Partial denture construction.
- Construction of metal base for full and partial denture, with vulcanite and all metal.
- Principles of clasp attachment and construction and adjustment of lingual bar.
- Study of different kinds of porcelain teeth.

Assistant Professor ALDECOA and Dr. VILLA.

#### PROSTHETIC CLINIC

Clinical practice and conference.

Clinical practice, 6 hours a week.

Conference, occasional.

Third year, first and second semesters, 108 hours a semester (6 hours a week).

Practical work and occasional conference of some subjects arising from the clinical practice in plate work. A general review of all the topics discussed and studied in connection with prosthetic technics and prosthetic dentistry. The students are required to finish satisfactorily a certain number of plates, full and partial.

Assistant Professor ALDECOA and Dr. VILLA.

#### CROWN AND BRIDGE CLINIC

Clinical practice and conference.

Clinical practice, 6 hours a week.

Conference, occasional.

Second year, second semester, 96 hours (6 hours a week).

Third year, first and second semesters, 108 hours each semester, 6 hours a week.

This course is intended for the second- and third-year students. Practical requirement of all the technics in crown and bridge work is absolutely necessary for passing the course. The department concerned supervises and approves each step of the technical procedures as outlined by the department. No credit is given to any practical work unless each and every step is approved by the instructor in charge.

Assistant Professor ALDECOA and Dr. VILLA.

#### DENTAL METALLURGY

Lectures, recitations, and demonstrations of metals used in dentistry.

Second year, first semester, 17 hours.

Dr. TECSON.

#### ADVANCED COURSE IN CROWN AND BRIDGE WORK

This is designed for those who take the post-graduate course or D.M.D. degree. Removable bridges with all kinds of retention are required. Emphasis is given to the anatomical and physiological restoration of the teeth. Informal discussion of various problems confronted in bridge work is given.

Fourth year, second semester, 153 hours.

Assistant Professor ALDECOA.

#### PORCELAIN WORK

The students are required to make a number of synthetic porcelain fillings and inlays. More emphasis is given to the selection of proper color to match the natural teeth. A certain number of crowns and bridges with porcelain facing for practical work are required.

Fourth year, second semester, 153 hours.

Assistant Professor ALDECOA.

#### INLAY

Lectures and recitations, laboratory, and clinical practice.

Lecture and recitation; one hour a week.

Laboratory and clinical practice; the rest of the period.

48 hours; 3 hours a week.

*INLAY*.—This course is given three hours a week, one hour of which is lecture and two hours for laboratory. The following subjects are fully covered:

Principles of casting with reference to different types of casting machines.

Principles of cavity preparations for inlay.

Carving inlay models, both technical and practical.

Inlay and clasp attachment pieces for bridge work.

Cast base for porcelain crown, both technical and practical.

Assistant Professor ALDECOA and Dr. VILLA.

#### DEPARTMENT OF LEGAL MEDICINE

##### DENTAL JURISPRUDENCE

*DENTAL JURISPRUDENCE*.—This course is given during the first semester and consists of lectures on the legal aspects of dentistry with

special reference to laws and regulations in the Philippines, designed to give the dental students a general knowledge on the subject sufficient to enable them to understand and handle medico-legal problems that they are likely to meet in their daily practice as well as to acquaint them with their professional duties and rights, relationship with the law and with the administration of justice. It embraces mainly the following subjects:

- (1) Relation of dentistry to law in general.
- (2) Legislative regulation of the practice of dentistry.
- (3) Contractual relation of the dental profession and the legal responsibilities and duties of dentists.
- (4) Dental malpractice.
- (5) Right of dentists to compensation.
- (6) Medical evidence, methods of judicial investigations, and procedure in courts of justice.

Third year, first semester, 17 hours.

Professor DE LOS ANGELES.

*DENTAL ECONOMICS, ETHICS, AND HISTORY OF DENTISTRY.*—In the second semester a lecture course on Dental Economics and Ethics and History of Dentistry is given, especially adapted to meet the needs of dentists as to the personal and moral aspect of the dental profession as well as to the historical development of the science and art of dentistry.

Third year, second semester, 16 hours.

Professor DE LOS ANGELES and Dr. A. VILLEGAS.

## **The School of Pharmacy**

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### **ADMINISTRATIVE OFFICERS**

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College of Medicine:* Dr. FERNANDO CALDERON

*Director of the School:* Dr. MARIANO V. DEL ROSARIO

*Acting Director:* Dr. FELIX HOCSON

*Acting Secretary of the School:* Dr. ALFREDO C. SANTOS

### **CHAIRMEN OF STANDING COMMITTEES**

*Admission:* Dr. MARIANO V. DEL ROSARIO

*Standing and Promotion:* Dr. FAUSTINO GARCIA

*Catalogue and Curriculum:* Dr. CANDIDO AFRICA

### **BUSINESS DIRECTORY**

**OFFICE OF THE DIRECTOR:** The office of the Director is located on the second floor of the Pharmacy Building, Philippine General Hospital, on Taft Avenue.

**TELEPHONE CONNECTION:** Tel. 1380.

**CORRESPONDENCE:** Address all correspondence to the Director, School of Pharmacy, College of Medicine, Manila, P. I.

## THE SCHOOL OF PHARMACY

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### HISTORY

The School of Pharmacy, organized during the year 1914, had its beginning within the University, as a logical outgrowth of the course in pharmacy instituted under the administrative control of the College of Liberal Arts, June 5, 1911.

In 1910, upon the recommendation of the President of the University, a committee was appointed by the Board of Regents for the purpose of determining the efficiency of the instruction in pharmacy as given by the then existing schools and colleges in the Philippine Islands and for the purpose of deciding upon the feasibility of giving such instruction at the University of the Philippines. As a result of the report of this committee, the Board of Regents appropriated the sum of ₱18,000 for the purchase of additional equipment and materials necessary to the offering of a modern course in pharmacy.

During the school year of 1911-12, the first year when instruction in pharmacy was given at the University, there were 32 students enrolled in the course. In following years, this number has gradually increased. It was for the purpose of meeting the needs of its growing student body as well as for better coördination of instruction that the Board of Regents on February 12, 1914, upon recommendation of the President of the University, authorized the establishment of the School of Pharmacy as a part of the College of Medicine. And recently the Dean of the College of Medicine acting upon the advice of the intramural committee and lately sanctioned by the Board of Regents has created an independent faculty for the school to act on matters of academic character.

With the transfer of the management of the Department of Pharmacy of the Philippine General Hospital to the School of Pharmacy, on July 16, 1914, pharmaceutical instruction in the University received a stimulus, and its field of activity and usefulness was very considerably enlarged. During the year 1922, the department dispensed 135,860 prescriptions and manufactured 5,071 pharmaceutical preparations for the Dispensary and Hospital supplies.

### AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

A few years ago our School of Pharmacy was elected to membership in this Association, an organization for the purpose of promoting the high ideals and standards of Pharmacy, as a profession, through pharmaceutical education.

In 1917 the Association adopted a resolution that a four-year high school entrance requirement become binding upon the schools of the Conference on and after September 1, 1923. Our School has adopted this entrance requirement since its establishment in 1911.

## THE FAIRCHILD SCHOLARSHIP

Mr. Samuel Fairchild, of New York, offers annually a scholarship amounting to \$300 to be awarded on the basis of a competitive examination to candidates who have successfully finished their first year's work in a college or school of pharmacy holding membership to the American Association of Colleges of Pharmacy. Each college or school is allowed and limited to two candidates.

## PHARMACEUTICAL CHEMIST

This School has offered since its establishment a three-year course in Pharmacy. As this course is equivalent to that of Pharmaceutical Chemist given in other schools, the degree of Graduate in Pharmacy formerly conferred on the students on the completion of this course, was changed to the degree of Pharmaceutical Chemist in 1921 by action of the Board of Regents.

## THE COMPULSORY FOUR-YEAR COURSE

The four-year course leading to the degree of B. S. in Pharmacy is optional in many schools but in the meeting of the American Conference of Pharmaceutical Faculties held in 1920, its adoption as the standard degree for pharmacists was suggested, effective in 1927.

As a result of a meeting held by the deans and directors of the different colleges and schools of pharmacy in the Philippines with the members of the Board of Pharmaceutical Examiners and Inspectors the adoption of the compulsory four-year course is proposed to be effective in the near future.

## PHILIPPINE ISLANDS LAW FOR THE PRACTICE OF PHARMACY

The Board of Pharmaceutical Examiners and Inspectors, created by Act No. 2711, is the one authorized to grant licenses for the practice of pharmacy in the Philippine Islands.

Act No. 2711, a copy of which can be secured from the Secretary of the Board, gives all the details pertaining to the pharmaceutical profession.

## OPPORTUNITIES FOR OUR GRADUATES

A glance over the curriculum of our school shows several professional positions open to the graduates of this School. If it is true that pharmacy is a sister science to medicine, then the work of the practitioner of the profession should not be confined solely to the filling of prescriptions and the selling of drugs but also to such phases of work assumed by the public analysts and experts, food and drug chemists, laboratory technicians in hospitals, and so forth. To this end, all efforts have been made to provide our students with a well-balanced course. Among the numerous opportunities which are offered to our graduates, the following may be enumerated:

(a) Chemical and microscopical analysis essential in the diagnosis of diseases.

(b) Drug assay and analysis of food, water, etc. In this connection it is gratifying to mention that, after six months of training in this work in the Bureau of Science, some of our graduates have filled important positions in that Bureau, and in recognition of their service a number of them have been pensioned in the United States to pursue some special or technical courses, such as plant chemistry, organic chemistry, mining, geology, botany, etc. These students have shown remarkable ability in their post-graduate studies abroad as many of them are now on active duty in the government service after obtaining higher degrees, such as master of science and doctor of philosophy, in first class universities.

(c) To teach science in high schools or in higher educational institutions.

### ENTRANCE EXAMINATIONS

**High School Physics.**—Students will be required to take entrance examination in High School Physics when they first enter the University if they intend to take College Physics. Students who fail in this examination will be required to take High School Physics (Physics 1) in the University.

**High School Mathematics.**—There has been instituted an entrance examination in High School Mathematics for all students entering the University. Students who fail in this test are required to take, without credit, a review course of High School Mathematics.

### ADMISSION REQUIREMENTS

Admission to the School may be made by certificate or by examination. In either case, applicants should correspond with the Director of the School of Pharmacy or the Secretary of the University. Application blanks, U. P. Forms Nos. 1 and 3, will be sent to applicants on request.

#### ADMISSION BY CERTIFICATE

Applicants who desire to be admitted without examination should send by mail all diplomas, certificates, and statements offered in place of the entrance examinations to the Director of the School, during the summer before the opening of the school year, not later than the 1st of June. For the details of admission by certificate write to the Director of the School or the Secretary of the University.

The applicant should not overlook the fact that the notebooks in Physics and Biology must be mailed with the certificates.

#### ADMISSION BY EXAMINATION

Applicants desiring to be admitted by examination should obtain permission to take the entrance examination from the Chairman of the University Committee on Admissions. Permission should be obtained at least two weeks before the date of examination to be taken. For further details ask the Director.

#### ADMISSION TO ADVANCED STANDING

Applicants for admission to advanced standing must meet the following requirements:

1. Submit evidence of their previous studies satisfactory to the faculty.
2. Pass an examination in each subject, or its equivalent, in the pharmacy course completed by the students of the class which they desire to enter.

3. They must have studied, as matriculated pharmacy students, in an approved school or college of pharmacy for a period of time at least equal to that already spent by the class which they seek to enter.

Candidates for graduation on advanced credit must complete at least the last two years of their studies in this school unless permission for different arrangement has been obtained from the faculty.

4. Candidates will be admitted to examinations for advanced standing only upon special authority granted by the faculty. Such examinations will be held only at the time of the regular entrance examination.

### SPECIAL STUDENTS

Persons over 20 years of age may under certain circumstances, even without satisfying the entrance requirements, be admitted as special students not candidate for a degree. The applicants must give evidence of ability to do creditable work and their applications for admissions must be approved by the departments concerned and the Director of the School.

Special students shall not be permitted to enroll for more than two years except by permission of the Director.

Special students who are admitted without satisfying the entrance requirements but who subsequently satisfy such requirements may attain the standing of regular students. College subjects taken in the University proper shall not be used to satisfy the entrance requirements.

Special students are subject to the fees and regulations prescribed for regular students and must take at least nine credit hours per week of class room or laboratory work.

### EXAMINATIONS

Examinations will be held at the end of each semester upon the completion of each subject, and at such other times as the teacher in charge of a course may elect.

Conditions in subjects in pharmacy must be removed in accordance with the rules and regulations of the University.

### RULES GOVERNING SCHOLARSHIP, PROMOTIONS, CONDITIONS, FAILURES, AND WITHDRAWALS OF STUDENTS

Detailed information regarding grades of scholarship and conditions and failures is given on page 52 of this catalogue.

1. A regularly enrolled pharmacy student, who has not received condition or failure in any of the subjects of the prescribed course during the academic year or who has removed all conditions before the beginning of the following academic year, will be advanced to and enrolled in the next higher class.

2. Irregular students will be classified under the class in which the majority of their subjects is taken.

3. On the examinations for removal of conditions, "3" is the highest grade that a student may receive.

4. If the student is conditioned in the first semester of a subject which is continuous for one year, the instructor in charge may, at his discretion, excuse the student from reexamination on the work of the first semester and allow him to obtain credit by passing the subject successfully in the second semester. If such a student then fails or is conditioned in the work of the second semester, he shall be reported as having failed in the work of both semesters.

5. A first year student who on account of failures has a "light schedule" in the second

## THE SCHOOL OF PHARMACY

semester will not be allowed to fill his schedule by taking second or third year subjects.

6. If a first year student obtained the grade of "5" at the end of the academic year in the two fundamental subjects (Botany and Chemistry) he shall not be allowed to enroll in any subject of the higher classes.

7. If at the end of the first year the grade of "5" is obtained in either of the fundamental subjects (Botany and Chemistry) the student will be permitted to take first or second year subjects *only* with the total credit of not more than 15 units including the subject in which he or she has failed.

8. A student classified as first year is not entitled for registration in any subject of the third year.

9. Any student registered in all of the regular subjects of any year of the prescribed course cannot take any prescribed course in any advanced year.

10. A second year student who fails in one subject will be allowed to take not more than 10 units in the first semester of the third year. If "5" is received in two subjects, he will not be registered in any subject of the third year.

11. The student who has received for the second time the grade of "5" in the same two subjects will be dismissed from the School.

12. Any student who received the average of from "4" to "5" in the total units of the subjects in which he is registered, will be suspended from the School for one semester.

13. A student whose number of absences for one semester exceeds 20 per cent of the recitation or lecture and laboratory hours in any one subject for that semester will be dropped automatically from the class roll and given a grade of "5" except that if the ma-

jority of absences shall be excused absences, no grade will be given.

14. All conditions obtained in the first semester may be removed free of charge within the first half of January of the same academic year; or at any other date before the final examination week upon payment of the regular fee for special examination. Matriculation in advanced courses of the second semester carrying the conditioned subject as prerequisite should be tentative and subject to automatic cancellation in case of failure to remove the conditioned prerequisite.

15. Conditions obtained in the second semester may be removed free of charge within the first week of June; or at any other date before the final examination week of the first semester upon payment of the regular fee for special examination. The tentative enrollment in the advanced courses is subject to automatic cancellation as in the preceding paragraph.

16. All conditions obtained in subjects which are not prerequisite to others may be removed during the week preceding the opening of the following session or at any other time required by the Faculty without the payment of a fee. Examination may be held at other times only by special permission of the Faculty and on payment of ₦10, provided that all conditions must be made up within one year.

17. Regular senior students who have been conditioned in more than one subject must not be granted privilege of re-examination earlier than the following June.

18. Special cases not provided in the foregoing rules and regulations should be taken up by the Committee on Standing and Promotion.

## GRADUATION WITH HONORS

The degree of Pharmaceutical Chemist or Bachelor of Science in Pharmacy "with honors" shall be granted to students in the regular course who have obtained an average grade of 1.50 without "4" in all subjects taken during three or four years' residence in the School. The degree of Pharmaceutical Chemist or Bachelor of Science in Pharmacy "with highest honors" shall be granted to students in regular course who have obtained a grade of 1 in not less than 75 percent of all subjects taken during three or four years' residence in the School, and a grade of 2 in all other subjects. This is equivalent to an average of 1.25 or better.

## DEPOSIT AND FEES

Tuition fee in the school is ₦25 a semester. Each student will be required to deposit ₦15 with the Secretary upon matriculation. This fee is deemed necessary to cover any loss of apparatus, books, supplies, etc., or any damage to University property which may properly become a charge against the student.

A fee of ₱5 per semester will be charged for each laboratory course giving 3 units of credit for a semester, except chemistry courses where ₱15 fee is charged for every semester. In courses where the credit to be obtained is more or less, the fee will vary accordingly.

An athletic fee of ₱1.50 per semester will be charged each student.

A fee of ₱2.50 yearly is charged for library privileges.

A subscription fee of ₱1 a semester is charged for the *Philippine Collegian*.

A fee of ₱0.50 a semester is charged for the expenses of the University Student Council.

## MILITARY SCIENCE

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

## LIBRARY FACILITIES

The school has established recently a small library for immediate reference of the students.

The library of the Bureau of Science is open to all students in pharmacy. The library at present contains complete sets of nine important journals of pharmacy along with many other reference works on pharmacy, chemistry, botany, and medical sciences. The student should find ample opportunity for current reading as fourteen of the leading foreign publications pertaining to pharmacy are regularly received and are at his disposal.

In addition, the University Library actually contains 15,000 volumes.

## LABORATORIES AND EQUIPMENT

Students in pharmacy do their work in the separate buildings housing the various departments of the University, a condition which possesses distinct advantages.

The botanical laboratories are equipped with an adequate number of microscopes and are supplied with the necessary specimens of plants, drugs, etc.

The courses in general and applied chemistry are given in properly equipped laboratories.

The laboratory work in Pharmacy and Pharmaceutical Chemistry is at present being carried on in the Pharmacy Building of the Philippine General Hospital. A number of machines for manufacturing on a fairly large scale installed in this building, are occasionally operated by the students. In addition to this, the well equipped chemical and bacteriological laboratories of the Bureau of Science will be available for the students in the four-year course.

## SPECIAL COURSE

Graduate students in pharmacy desiring to take special courses in dispensing, manufacturing, and managing of a drug store, etc., will be admitted at any time upon application to the Director of the School of

## THE SCHOOL OF PHARMACY

Pharmacy. Such courses do not lead to any degree. A University certificate of attendance will be given those special students who have completed in a satisfactory manner twenty-four or more weeks of graduate instruction.

## THE THREE-YEAR CURRICULUM IN PHARMACY

*Leads to the degree of Pharmaceutical Chemist (Phar. Chem.) Open to Graduates of Approved Four-Year Secondary Schools*

## FIRST YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Engl 1.....	3	3	Engl 1.....	3	3
Bot 2.....	9	5	Bot 2.....	9	5
Chem 24.....	9	5	Chem 24.....	9	5
Pharm 3.....	6	4	Zool 2.....	5	3
Math 7 (Op).....	3	3	Accounting 6.....	2	2
Military Science and Tactics.....	3	3	Pharm 8.....	1	1
Phys Educ.....	1	---	Military Science and Tactics.....	3	3
<b>Totals.....</b>	<b>34</b>	<b>23</b>	<b>Phys Educ.....</b>	<b>1</b>	<b>---</b>
			<b>Totals.....</b>	<b>33</b>	<b>22</b>

## SECOND YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Bot 7.....	9	5	Bot 8.....	9	5
Chem 26.....	9	5	Chem 26.....	9	5
Chem 27.....	9	5	Chem 28.....	9	5
Physiol 2.....	3	3	Ph Chem 1.....	7	4
Pharm 4.....	7	3	<b>Totals.....</b>	<b>34</b>	<b>19</b>
<b>Totals.....</b>	<b>37</b>	<b>21</b>			

## THIRD YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
French or German (Op- tional).....	3	3	French or German (Op- tional).....	3	3
Biochemistry.....	10	6	Bacteriology.....	9	5
Ph Jur and Et.....	1	1	Ph Jur and Et.....	1	1
Pharmacology.....	2	2	Pharmacology.....	5	3
Ph Chem 2.....	4	2	Hygiene 1P.....	8	4
Ph Chem 3.....	7	3	Parasitology.....	4	2
Ph Chem 5.....	7	3	Pharm 5.....	7	3
<b>Totals.....</b>	<b>34</b>	<b>20</b>	<b>Totals.....</b>	<b>37</b>	<b>21</b>

## THE FOUR-YEAR CURRICULUM IN PHARMACY

*Leads to the degree of Bachelor of Science in Pharmacy; B.S. (Phar.)*

### FIRST YEAR

### SECOND YEAR

### THIRD YEAR

(Same as the corresponding courses of the Three-Year Curriculum including a year of either French or German.)

### FOURTH-YEAR "A"

<i>First Semester</i>	Units	<i>Second Semester</i>	Units
French 2 or German 2.....	3	French 2 or German 2.....	3
Chem 102.....	4	Chem 102.....	4
Physics 2.....	4	Physics 2.....	4
Ph Chem 6.....	3	Ph Chem 6.....	3
Chem 29.....	5	Lab Work Bureau of Science.....	6
Pharm 1.....	1		
Total.....	<b>20</b>	Total.....	<b>20</b>

### FOURTH-YEAR "B"

<i>First Semester</i>	Units	<i>Second Semester</i>	Units
French 2 or German 2.....	3	French 2 or German 2.....	3
Clinical Microscopy.....	3	Applied Clinical Microscopy.....	3
Pharm 1.....	1	Physics 2.....	4
Physics 2.....	4	Ph Chem 7.....	3
Electives.....	9	Pharmacy 2.....	3
	<b>20</b>	Elective.....	<b>3</b>
Total.....	<b>20</b>	Total.....	<b>19</b>

Either of the Courses A or B shown above may be taken.

The students who prefer course A are trained in chemico-pharmaceutical works while those who choose course B are prepared for clinico-bacteriological works.

The electives may be taken under the Departments of Pharmaceutical Chemistry, Pharmacy, Botany, Chemistry, or other sciences allied to Pharmacy, upon approval of the Director.

## COURSES OF INSTRUCTION

### BACTERIOLOGY

Professor and Acting Head LIBORIO GOMEZ; Assistant Professor REGINO J. NAVARRO

3. *PHARMACEUTICAL BACTERIOLOGY*.—In the Philippines the pharmacist of the provinces, in many places, undoubtedly, will be called upon in emergencies to assist the physicians in sanitary work or occasionally to act on his initiative. For this reason it has been deemed advisable to include in his training sufficient bacteriology to prepare him

for such work. The course will not be as extensive or complete as that given in the course for medical students.

A number of the more common pathogenic bacteria are studied in the laboratory, and the methods of their dissemination and their relation to diseases pointed out. A number of lectures on industrial bacteriology is also included.

The principles of disinfection and sterilization are emphasized. A brief consideration of the laws of immunity is given and the methods of preparation of antisera and bacterial vaccines are described.

Third year; second semester, credit 5 units.

**CLINICAL MICROSCOPY.**—The course consists in practical laboratory instruction with such talks and recitations as are necessary to elucidate the subject. The students are taught the methods and practical diagnostic importance of microscopic examination of feces, urine, sputum, blood, materials from various lesions of the skin, and fluids obtained by aspiration.

Fourth year; first semester, credit 3 units.

Dr. NAVARRO.

**APPLIED CLINICAL MICROSCOPY.**—Students are assigned to work in the different sections of the pathological laboratory of the Philippine General Hospital. They are shown actual laboratory procedures and are required to duplicate the tests under the direct supervision of the doctor in charge of the section. Short discussions on methods other than the ones used in the laboratory are often given to acquaint the students of the different methods of laboratory examinations.

Fourth year; second semester.

Dr. NAVARRO and Laboratory Staff.

#### BOTANY

Assistant Professor and Acting Head, JOSE K. SANTOS;

Assistant Professor, JOAQUIN MARAÑON; Instructors, MARIA PASTRANA and EUGENIA INCO-CAPARAS; Assistants MARIA TOLENTINO and PETRONILA MARASIGAN.

**Botany 2. MORPHOLOGY AND CLASSIFICATION OF PLANTS.**—The course is designed for beginners in botany. The work in the first semester is a general course in the morphology and physiology of seed plants, and in the second semester, the morphology and classification of lower plants and the classification of the flowering plants. Lectures and laboratory work will be supplemented by study in the field and in the herbarium; each student will be required to prepare a small herbarium. The chief object of the course is to give students a broad conception of the morphology, histology, and classification of plants. It is especially suitable for students desiring a preparation for the study of plant products and is required of first year pharmacy students as the basis for the study of pharmacognosy.

Textbook: Brown, Elementary Tropical Botany; supplemented in the second semester by Merrill, Flora of Manila.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 5 units each semester.

Drs. SANTOS and MARAÑON, Miss PASTRANA, Mrs. INCO-CAPARRAS, and Assistants.

**Botany 7. PHARMACOGNOSY.**—A study of the crude vegetable drugs of the United States Pharmacopœia. The laboratory work will cover the gross and microscopical characters of drugs and include some study of powdered drugs. Identification will receive careful attention and there will be frequent tests of ability to determine drugs. Lectures and tests will cover the main facts of the pharmacography of each drug. The roots, rhizomes, barks, and leaves will be taken up in this semester.

Textbook: Kraemer, Scientific and Applied Pharmacognosy; or Sayre, Organic Materia Medica and Pharmacognosy.

Prerequisite: Botany 2.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

Dr. SANTOS, Mrs. INCO-CAPARRAS, and Miss TOLENTINO.

**Botany 8. PHARMACOGNOSY.**—A continuation of the preceding course, dealing with the flowers, fruits, seeds, and miscellaneous vegetable and animal drugs of the United States Pharmacopœia.

Prerequisite: Botany 7.

9 hours a week (6 Lab, 3 Class); second semester, credit 5 units.

Dr. SANTOS, Mrs. INCO-CAPARRAS, Miss TOLENTINO, and Assistants.

**Botany 210. VEGETABLE HISTOLOGY.**—A systematic study of the tissues of vascular plants with particular emphasis on the methods used in studying plant morphology. This course is designed primarily as an advanced course for students desiring to teach botany. Special attention will be given to developing the power of observation, and to the preparation of specimens, and the making of illustrations.

Prerequisite: Botany 2 or 4.

9 hours a week (Laboratory with occasional lectures); throughout the year, credit 5 units each semester.

Dr. SANTOS.

## CHEMISTRY

Professor and Head, AUGUSTUS P. WEST; Professor JOSE I. DEL ROSARIO; Associate Professor AMANDO CLEMENTE; Assistant Professor PILAR PEREZ HERRERA-BATTEKE; Assistants JOSEFA GOTAUCO, PAZ SORIANO, PURA SANTILLAN, and Mr. JOVELLANOS.

The Department of Chemistry occupies the Freer Chemical Laboratory and the newly erected building, the Freer Annex.

The following chemical courses are given in the College of Liberal Arts for Pharmacy students.

### COURSES PRIMARILY FOR UNDERGRADUATE STUDENTS

**Chemistry 24 (Chem 24); GENERAL AND INORGANIC CHEMISTRY.**—A course giving the essentials of elementary general inorganic college chemistry. Both the fundamental principles and the practical application to pharmacy as well as to the industries and every life are emphasized.

Lectures, recitations, and laboratory work.

Lectures: M-W-F, 8:30-9:30.

Laboratory Secs. A, B, C: M-W-F, 9:30-11:30.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 10 units.

Dr. HERRERA, Miss SORIANO, and Miss SANTILLAN.

**Chemistry 26 (Chem 26); ORGANIC CHEMISTRY** (Chemistry of Carbon compounds).—An introductory course giving the theoretical principles and practical applications of synthetic organic Chemistry. The general relation between different groups of compounds, the application of general reactions, and the laboratory preparation, and general behavior of compounds characteristic of each group are emphasized.

Prerequisites: Chemistry 23 (24 or 25).

Lectures, recitations, and laboratory work.

Lectures Sec. A: M-W-F, 1:00–2:00.

Lectures Sec. B: T-Th-S, 1:00–2:00.

Laboratory Sec. A: M-W-F, 2:00–4:00.

Laboratory Sec. B: T-Th-S, 2:00–4:00.

9 hours a week (6 Lab, 3 Class); throughout the year, credit 10 units.

Dr. WEST, Mrs. VICENTE and Miss ORETA.

**Chemistry 27 (Chem 27) QUALITATIVE INORGANIC ANALYSIS.**—A systematic qualitative analysis of basic and acidic constituents of compounds, with drill in the analysis of mixtures, minerals and alloys ("unknowns") the composition of which is unknown to the student. Each "unknown" is considered a practical examination. A course designed primarily for premedical and pharmacy students.

Prerequisites: Chemistry 23 (24 or 25).

Lectures, recitations, and laboratory work.

Lectures Sec. A: T-Th-S, 7:30–8:30.

Lectures Sec. A: T-Th-S, 8:30–10:30.

Laboratory Sec. B: M-W-F, 8:30–10:30.

9 hours a week (6 Lab, 3 Class); first semester, credit 5 units.

Prof. DEL ROSARIO, Miss GOTAUCO and Mr. JOVELLANOS.

**Chemistry 28 (Chem 28); QUANTITATIVE INORGANIC ANALYSIS (Volumetric and Gravimetric).**—The theory and practice of volumetric and gravimetric analysis, chiefly the analysis of sample salts, minerals, and alloys. Special emphasis is laid upon the chemical calculations of standard solutions, oxidation reactions, iodimetry, etc.

Prerequisites: Chemistry 23 (24 or 25) and 27.

Lectures, recitations, and laboratory work.

Lectures: T-Th-S, 7:30–8:30.

Laboratory: T-Th-S, 8:30–10:30.

9 hours a week (6 Lab, 3 Class); second semester, credit 5 units.

Prof. DEL ROSARIO, Miss GOTAUCO and Mr. JOVELLANOS.

**Chemistry 29 (Chem 29); ELEMENTARY PHYSICAL CHEMISTRY.**—A course devoted to the elementary study of the fundamental laws and properties of liquids and gases. Special attention is given to the essentials of electro-chemistry, thermo-chemistry, and chemical dynamics, colloids, radio-chemistry, etc.

Prerequisites: Chemistry 27 and 28, Physics 2.

Lectures, recitations, and laboratory work.

9 hours a week (3 Class, 6 Lab); first semester, credit 5 units.

Dr. CLEMENTE.

Chemistry 30 (Chem 30); *ADVANCED COLLEGE CHEMISTRY*.—A review course in General and Inorganic Chemistry to suit the needs of students who wish to take a more advanced course in inorganic chemistry and who do not expect to pursue a general course in Physical chemistry.

Lectures, recitations, and laboratory work.

9 hours a week; one semester, 3 units.

Prof. ROSARIO.

#### COURSES FOR BOTH UNDERGRADUATES AND GRADUATES

Chemistry 101 (Chem 101); *HISTORICAL CHEMISTRY*.—Historical study of the development of chemical theories from the time of the ancients to the present. Special attention is given to reports on private reading and literature reviews on assigned topics.

Prerequisites: Chemistry 23 (24 or 25), 27, and 28.

Lectures and recitations.

2 hours a week; one semester, credit 2 units.

Dr. WEST.

Chemistry 102 (Chem 102); *TECHNICAL ANALYSIS* (Applied Analytical Chemistry).—A course in the analysis of ores, water, mineral oils, soils, cement, gas, etc.

Prerequisites: Chem 23 (24 or 25) 27, and 28.

Lectures, recitations, and laboratory work.

9 hours a week (7 Lab, 2 Class); throughout the year, credit 8 units.

Prof. DEL ROSARIO and Miss GOTAUCO.

Chemistry 103 (Chem 103); *FOOD ANALYSIS*.—A course in the analysis of foods such as milk, butter, cheese, coffee, chocolate, sugar, (Polariscope, Fehling's and Clerget's method), cereals, wines, etc.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

9 hours a week (7 Lab, 2 Class); throughout the year, credit 8 units.

Prof. DEL ROSARIO and Mr. DEL MUNDO.

Chemistry 104 (Chem 104); *CHEMISTRY OF VEGETABLE FATS AND OILS*.—Determination of oil constants and special methods of investigation.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

9 hours a week (7 Lab, 2 Class); throughout the year, credit 8 units.

Dr. WEST.

Chemistry 105 (Chem 105); *ADVANCED ORGANIC CHEMISTRY* (Analytic).—Ultimate organic analysis, qualitative and quantitative; and a study of methods for detecting and estimating the different groups in organic compounds.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

9 hours a week (2 Class, 7 Lab); one semester, credit 4 units.

Dr. HERRERA.

Chemistry 106 (Chem 106); *ADVANCED ORGANIC CHEMISTRY* (Synthetic).—Advanced organic synthesis and special training in organic laboratory technique.

Prerequisites: Chem 23 (24 or 25), 26, 27, and 28.

Lectures, recitations, and laboratory work.

9 hours a week (2 Class, 7 Lab); one semester, credit 4 units.

Dr. HERRERA.

#### ELECTIVE COURSES

Chemistry 204 (Chem 204); *CHEMICAL MICROSCOPY*.—Characteristic microchemical methods and tests.

Lectures, recitations, and laboratory work.

8 hours a week (6 Lab, 2 Class); one semester, credit 4 units.

Prof. ROSARIO.

Chemistry 205 (Chem 205); *INDUSTRIAL CHEMISTRY*.—Lectures on Modern Factory operation, Sanitation, Water Supply, Fuels, Industrial alcohol, Acids, Alkalies, Electrochemical and metallurgical Industries, Cement, Sugar, and Cellulose Industries; Dehydrated, Evaporated, and Condensed Foods; Factory Inspection in Manila and vicinity.

3 hours a week; one semester, credit 3 units.

Dr. QUISUMBING.

Chemistry 206 (Chem 206); *INDUSTRIAL CHEMISTRY*.—A laboratory course in industrial processes, to supplement chemistry 205.

9 hours a week; one semester, credit 3 units.

Dr. QUISUMBING.

Chemistry 207 (Chem 207); *THE TEACHING OF CHEMISTRY*.—Lectures and conferences on the teaching of science with particular reference to chemistry. A course designed especially for prospective teachers in chemistry.

Lectures and recitations.

1 hour a week; one semester, credit 1 unit.

Prof. ROSARIO.

#### RESEARCH

The Philippine forests contain a large number of trees and other plants which produce seed oils, essential oils, resins, and gums. A number of forest products are used locally while a few are exported to foreign countries.

Various economic and theoretical problems on these forest products are now being investigated. Students desiring to work on the chemistry of Philippine forest products for a Master of Science degree have a wide range of practical subjects from which to select problems for dissertation work.

Students desiring research work in Physical or Analytical Chemistry may also obtain problems for investigation along these lines.

**NOTE.**—Further information about other courses in chemistry may be found in the catalogue of the College of Liberal Arts.

**ECONOMICS**

Professor and Acting Head, MAXIMO M. KALAW; Instructor PEDRO SANTIAGO

Accounting 6 (Old Number—Econ 28); *PHARMACY ACCOUNTING, BUSINESS ORGANIZATION AND PRACTICE*.—Required of students in the School of Pharmacy. Essential principles of accounting, business organization and operations, with special reference to the needs of students of Pharmacy.

2 hours a week, first year; second semester, credit 2 units.  
Mr. SANTIAGO.

**ENGLISH**

Professor and Head, H. P. SCOTT.

English 1 (Engl 1); *COMPOSITION*.—A practical course in writing and speaking. One day a week is devoted to a study of idioms and to the correction of typical errors; one day to oral or written exposition of assigned topics; one day to written themes. In addition, reports on six home-reading books are required.

Prescribed for all regular first-year students in the Colleges of Liberal Arts, Education, Engineering, and School of Pharmacy; and prerequisite to all other courses in English.

3 hours a week (Class); throughout the year, credit 6 units.

**DEPARTMENT OF FRENCH**

Assistant Professor ANGELA B. DE LA CANTERA, Instructor CECILIO LOPEZ.

French 1 (Fren 1); *ELEMENTARY GRAMMAR AND COMPOSITION*.—Reading and translation of easy French prose.

3 hours a week (Class); throughout the year, credit 6 units.

French 2 (Fren 2); *INTERMEDIATE FRENCH*.—Second part grammar and composition—sight translation and conversations.

3 hours a week (Class); throughout the year, credit 6 units.

French 101 (Fren 101); *REVIEW OF ADVANCED GRAMMAR*.—Sight reading and translations of best modern authors—lectures on French literature.

3 hours a week (Class); throughout the year, credit 6 units.

French 201 (Fren 201); *ADVANCED FRENCH COMPOSITION, HISTORY OF FRENCH LITERATURE*.—Lectures on the French “Auteurs Classiques” and poetry. May be taken by graduate students.

3 hours a week (Class); throughout the year, credit 6 units.

**GERMAN**

Professor EMILIO NATIVIDAD (in charge)

German 1 (Ger 1); *A FIRST YEAR COLLEGE COURSE IN GERMAN*.—Pronunciation, grammar, easy readings, with practice in speaking and writing German.

3 hours a week (Class); throughout the year, credit 6 units.

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NOTE—Announcements for French and German are subject to change as per College of Liberal Arts announcements.

**German 2 (Ger 2); A PREPARATORY COURSE FOR THE READING OF LITERARY AND SCIENTIFIC AUTHORS.**—Class and outside reading of selected texts. Grammar and written exercises continued.

Prerequisite: German 1.

3 hours a week (Class); throughout the year, credit 6 units.

**German 104 (Ger 104); SCIENTIFIC GERMAN.**—Study of German scientific authors of special interest to individual students. Works and monographs on medicine, chemistry, ethnography, etc., read under guidance of the instructors.

Prerequisites: German 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

**German 201 (Ger 201); HISTORY OF GERMAN LITERATURE.**—This course is designed to introduce the students to the lives and works of the more important authors and to give an insight into the different epochs of German Literature.

Prerequisites: German 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

**German 202 (Ger 202); HISTORY OF THE GERMAN LANGUAGE.**—This course deals with the evolution of the German language from the earliest times to the present day.

Prerequisites: German 1 and 2.

3 hours a week (Class); throughout the year, credit 6 units.

#### HYGIENE AND PREVENTIVE MEDICINE

Associate Professor and Head, H. LARA; Assistant Professor, AMPARO CONCHA-BRILLANTES; Instructor, RAMON MACASAET; and Instructor CRISOSTOMO ORTIGAS

The Department gives one required course in Hygiene and Preventive Medicine during the second semester to the third year and one elective course during the first semester to the fourth year graduate B.

**Hygiene 1P. PRINCIPLES OF HYGIENE.**—Given to third-year pharmacy. Eight hours a week (didactic 2 and laboratory 6), during the second semester.

The course consists of lectures and recitations on infection, transmission, immunity and resistance, disinfection and disinfectants, light, air and ventilation, soil, disposal of refuse and sewage, water supply and purification, foods, and their relation to the prevention of diseases. In giving the course consideration is taken of the students' preliminary training in elementary bacteriology and parasitology. The relation of pharmacy practice to public health is emphasized.

The laboratory supplements the lectures and recitations. It deals with some chemical and biologic technic essential in the practical examination of air, soil, water, milk and other fresh and preserved foods. The principles of preparation of vaccine and anti-serum and testing of disinfectants are taken up also. Throughout the course emphasis is laid upon observance of good and careful technic. The students are required to hand in reports of every analysis made.

The field work consists of sanitary excursions and demonstrations. The students are taken in groups to visit places of especial interest like the

health stations, the slaughterhouse, dairy farms, dairy product and other food factories, water supply reservoir and San Lazaro Hospital.

Hygiene 1. *ELECTIVE FOR GRADUATE FOURTH YEAR "B."*—Given during the first semester, 8 hours a week. For description see Catalogue of the College of Medicine.

#### LEGAL MEDICINE

Professor and Head, **SIXTO DE LOS ANGELES**; Assistant Professor, **ANASTACIA VILLEGRAS**

*PHARMACEUTICAL JURISPRUDENCE AND ETHICS.*—The instruction in this course is given by lectures, one hour a week, during the whole course of the third-year students of pharmacy, covering the study of the legal relation of the practice of pharmacy with special reference to the rules and conditions prevailing in the Philippines, in order to enable them sufficiently to understand and to solve pharmaco-legal problems that they are likely to meet in their daily practice and to familiarize them with their professional duties and rights. In addition to this, a course on first aid to the sick and injured persons in emergency cases is given.

With respect to ethics, special lectures are given consisting of a brief discussion of the ethical rules and principles governing the relation and duties of the pharmacists to each other and to their profession at large, to the public, to physicians, and to the Government.

Textbook: Angeles, S. de los, Outlines of a Course in Pharmaceutical Jurisprudence and Ethics.

Third-year Pharmacy; throughout the year, credit 2 units.

Drs. DE LOS ANGELES and VILLEGRAS.

#### MATHEMATICS

Professor and Head, **VIDAL A. TAN**.

Mathematics A (Math A).—Review of elementary Algebra and Geometry.

3 hours a week; one semester, no credit.

Mathematics 7 (Math 7).—Prerequisite to Physics 2.

(See announcements under College of Liberal Arts for the description of the course).

#### PARASITOLOGY

Professor and Head, **LUIS GUERRERO**; Assistant Professor, **CANDIDO AFRICA**

*PARASITOLOGY 5* (General Parasitology for pharmacy students).—This course is designed to give the senior pharmacy students some general information concerning parasitology. It will consist of lectures, laboratory work, and demonstration of museum specimens of typical metazoan and protozoan parasites, and of insect vectors of disease. In helminthology the general morphology and life histories of the more important flukes, tapeworms and round worms will be considered. In protozoölogy the lectures will deal chiefly on the morphology, physiology and reproduction of the four groups of the protozoa and the general principles governing the life cycles, mode of transmission, and pathogenicity of typical parasitic species. In entomology attention will be paid to those insects which are responsible for the transmission of important bacterial, protozal, and hel-

minthal diseases. Drugs which are most commonly employed in the treatment of disease of parasitic causation will be briefly discussed.

Third year; second semester, 64 hours.

### PHARMACEUTICAL CHEMISTRY

Professor and Head, M. V. DEL ROSARIO; Assistant Professor of Botany, JOAQUIN MARAÑON; Instructor, ALFREDO C. SANTOS; Assistant Instructor, SALUD GARCIA; Graduate Student-Assistants.

**1. INORGANIC AND ORGANIC PHARMACEUTICAL PREPARATIONS.**—It is the aim of this course to train the students in the preparation of the inorganic and organic substances as comprehended in the United States Pharmacopoeia, especially such as may be successfully prepared by practicing pharmacists without the use of any more expensive set of apparatus than that which is generally found in the outfit of a fairly equipped pharmacy. Instruction is given by lectures, recitations, and laboratory work. In the lectures and recitations the processes and the general principles of preparation, the properties including incompatibilities, and the methods of preservation of the inorganic and organic substances will be discussed.

The laboratory work will deal mostly with the official preparations according to the pharmacopoeial methods.

Second year; second semester, credit 4 units.

Drs. DEL ROSARIO and SANTOS, Miss GARCIA, and Graduate Student-Assistants.

**2. PHARMACOPOEIAL TESTING.**—In the laboratory the student will make the most important physical and chemical tests of official drugs and preparations, including tests for identity, purity, and adulteration. This will include determination of solubilities, of specific gravity, of the index of refraction, the time limit test for heavy metals, etc. The lectures will consist mainly of an explanation of the principles and methods used in the laboratory.

Third year; first semester, credit 2 units.

Drs. DEL ROSARIO and SANTOS, and Miss GARCIA.

**3. PHARMACEUTICAL ASSAYING.**—The course is devoted to a practical study of the chemical assays authorized by the pharmacopoeia of the United States. The lectures will include a critical discussion of the pharmacopoeial methods and of proposed changes in the methods.

Third year; first semester, credit 3 units.

Drs. DEL ROSARIO and SANTOS, Miss GARCIA, and Graduate Student-Assistants.

**4. ADVANCED PHARMACEUTICAL ASSAYING.**—A continuation of Pharmaceutical Chemistry 3; but covering a wider field as the assays will not be limited to the Pharmacopoeia. An elective course open to fourth year students after they have completed the first three years of prescribed studies.

Fourth year, 3 units.

Dr. DEL ROSARIO.

**5. CHEMICAL TOXICOLOGY.**—This course will consist of lectures and laboratory work. In the laboratory the student will study the chemical

## SEMESTRAL COURSES: PHARMACOLOGY, PHARMACY 341

properties of poisonous substances and the processes of detection in the presence of other substances, including foods, stomach contents, tissues, etc. When practicable, quantitative estimations will also be made.

Third year; first semester, credit 8 units.

Dr. SANTOS, Miss GARCIA, and Graduate Student-Assistants.

6. *PLANT BIOCHEMISTRY*.—Instruction in this subject is given in the form of lectures, seminary, and laboratory work. In the first semester, the lectures deal with the general survey of the plant constituents from the standpoint of plant physiology, and pharmaceutical chemistry. The laboratory work takes up the general methods followed in extracting from the plant itself the chemical compound of which it consists and to apply some of the important qualitative tests necessary to demonstrate their properties. In the second semester, the course consists of seminary and laboratory experiments on the quantitative estimation of various plant constituents, particular attention being placed on those active principles of plants which are of direct concern to the individual need of the student.

Fourth year; throughout the year, credit 6 units.

Dr. MARAÑON.

7. *PHARMACO-ORGANIC SYNTHESIS*.—A laboratory course in synthesis of organic compounds of pharmaceutical or medical interest. The course is designed especially for the students taking the four-year course.

Fourth year; second semester, credit 3 units.

Drs. DEL ROSARIO and SANTOS.

8. *PHARMACEUTICAL RESEARCH*.—There is an abundance of plant life in the Tropics, and the chemistry of the medicinal plants of the Philippines has hardly been touched. Climatic conditions in the Islands are such as to make necessary various changes in the preparations and methods of the United States Pharmacopoeia. Research along these two lines is therefore of interest and of value. Work of this nature is open to all qualified students, the hours to be arranged with the instructor.

Fourth year, credit 3 units.

Drs. DEL ROSARIO and SANTOS.

**APPLIED PHARMACEUTICAL CHEMISTRY FOR NURSES.**—(See Catalogue of School of Nursing.)

Drs. DEL ROSARIO and SANTOS, and Miss GARCIA.

### PHARMACOLOGY

Professor and Head, DANIEL DE LA PAZ; Associate Professor, FAUSTINO GARCIA; Instructor, JOSE E. JIMENEZ

**PHARMACOLOGY** (including Toxicology, Materia Medica, Therapeutics and Biological Assay).—One hour lecture, twice a week during the 5th and 6th semesters and 3 hours laboratory a week during the 6th semester. Total (didactic 68, laboratory 51), 119 hours.

The course consists of lectures on the actions, materia medica and uses of the more important drugs, and laboratory exercises illustrating the principles and methods involved in the biological assay of drugs and the treatment of poisoning in animals.

**PHARMACY**

**Professor and Head, FELIX HOCSON; Assistant Professor, PATROCINIO VALENZUELA<sup>1</sup>; Instructor, SALUD CAMPOS; Assistant, JOSEFINA RAMOS; Graduate Student-Assistant**

**1. HISTORY OF PHARMACY.**—This course of lectures discusses the development of pharmacy from its earliest stages to the present time.

Special attention is given to the history of Pharmacy in the Philippines. Students are required to report on assigned topics, such as biographies of leading Filipino Pharmacists, Evolution of Drugstores in the Philippines, etc.

Fourth year; first semester, credit 1 unit.  
Dr. HOCSON.

**2. PHARMACEUTICAL MANUFACTURING.**—This course is intended to give students a working knowledge of the various kinds of machinery used in the manufacturing of pharmaceutical products. It is intended thereby to encourage the manufacture of these products at home rather than their purchase abroad at a large expense. It is a combined lecture and laboratory course.

Fourth year; second semester, credit 3 units.  
Dr. HOCSON and Assistants.

**3. TECHNICAL PHARMACY.**—Lectures, recitations, and laboratory work. This course consists of the study of metrology, pharmaceutical processes, physical constants, and pharmaceutical calculations.

It includes the manipulation of balances, thermometers, polariscope, refractometers, etc., and the calibration of weights and measuring apparatus.

First year; first semester, credit 4 units.  
Dr. CAMPOS and Miss RAMOS.

**4. GALENICAL PREPARATIONS.**—In this course various galenicals will be prepared and studied in the laboratory and discussed in the lectures. The course will include the preparation and study of waters, spirits, syrups, elixirs, glycerites, oleates, liniments, infusions, decoctions, tinctures, fluid-extracts, extracts, etc.

Second year; first semester, credit 3 units.  
Drs. HOCSON and CAMPOS and Miss RAMOS.

**5. PRESCRIPTION READING, COMPOUNDING, AND DISPENSING.**—This course is devoted to a study of prescription forms and abbreviations, the compounding of prescriptions, and the dispensing of medicine. It includes a systematic study of incompatibilities and a review of posology as it concerns the pharmacist and also the study of pills, ointments, suppositories, cataplasms, papers, cerates, troches, tablets, powders, and plasters.

Third year; second semester, credit 3 units.  
Drs. HOCSON and CAMPOS and Miss RAMOS.

**8. PHARMACEUTICAL LATIN.**—This course is a real need for students of pharmacy and mainly for those who have not taken any course

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<sup>1</sup> On leave.

of this sort in the high school. This course, also, proves to be very useful, for those who get some principles in Latin.

First year; second semester, credit 4 units.  
Dr. CAMPOS.

*PHARMACY INCLUDING WEIGHTS AND MEASURES.*—(See Catalogue of School of Nursing.)

PHYSICS Dr. CAMPOS.

Professor and Head, G. B. OBEAR

*PHYSICS 2P.*—A course for Bachelor of Science in Pharmacy. Recitations with Physics 2M, 3 periods per week; laboratory work, experiments selected with reference to the needs of students in Pharmacy, 1 period per week.

Prerequisite: Mathematics 7 or its equivalent.

Throughout the year, credit 8 units.

#### PHYSIOLOGY AND BIOCHEMISTRY

Associate Professor and Acting Head, ISABELO CONCEPCION; Associate Professor, EMILIO BULATAO; Instructors, WENCESLAO PASCUAL and MARIANO OCAMPO

1. *BIOCHEMISTRY*.—Four lecture or recitation hours and six laboratory hours a week during the first semester of the third year. Total (didactic 63 hours, laboratory 93 hours), 156 hours.

Dr. CONCEPCION and Mr. OCAMPO.

This course covers the chemistry of proteins, fats, carbohydrates, blood, digestion, secretion, excretion, and metabolism. Special attention is given to the methods which are used clinically in the examination of blood, urine, etc.

2. *PHYSIOLOGY*.—Three lectures or recitations a week during the first semester of the second year. Total (didactic 34, laboratory 51), 85 hours.

Drs. BULATAO and PASCUAL.

This course consists of lectures and recitations with demonstration experiments on the physiology of muscle, nerve, blood, circulation, respiration, mechanics of digestion, secretions, excretions, heat regulation, and the nervous system.

#### ZOOLOGY

Professor and Head, P. B. SIVICKIS; Assistant Professor, L. CLEMENTE; Assistant Instructors, A. FELICIANO and M. TINTIANGCO

2. *ZOOLOGY FOR PHARMACY STUDENTS*.—This course is designed more particularly for pharmacy students but it will be found a useful course for others, especially those who expect to teach.

It will be primarily a course in general zoölogy, taking up the different phyla of animals and giving examples of various groups. Emphasis will be placed upon the economic side of zoölogy, and special emphasis on those forms particularly important in pharmacy.

**THE SCHOOL OF PHARMACY**

The laboratory work will deal principally with the dissection of the cat, frog, turtle, an other forms such as leeches, beetles, and sponges.

Textbook: Daugherty, Principles of Economic Zoölogy.

5 hours a week (3 Lab, 2 Didactic); first semester, credit 3 units.

Dr. SIVICKIS and Assistants.

**LABORATORY WORK IN THE BUREAU OF SCIENCE**

Practical training in actual routine analysis in chemical laboratories given in the Bureau of Science under the supervision of the technical personnel of the Bureau. This will surely develop the technique of the post-graduate students, thanks to this privilege courteously granted by the Director of the Bureau.

# The College of Agriculture

## ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College and Director of the Experiment Station:* Professor CHARLES FULLER BAKER

*Secretary of the College:* Assistant Professor MARIANO C. LOPEZ

*Heads of Departments:*

*Agricultural Chemistry:* Professor MANUEL L. ROXAS

*Agronomy:* Dean C. F. BAKER (Acting)

*Animal Husbandry:* Professor BIENVENIDO M. GONZALEZ

*English:* Associate Professor EMMA S. YULE

*Entomology:* Associate Professor LEOPOLDO B. UICHANCO (Acting)

*Extension Activities:* Professor INNOCENCIO ELAYDA

*Plant Pathology:* Assistant Professor GERARDO O. OFCEMIA (Acting)

*Plant Physiology:* Associate Professor RAFAEL B. ESPINO (Acting)

*Rural Economics:* Assistant Professor MARIANO C. LOPEZ (Acting)

*Rural Engineering:* C. P. JOHNSON

*Military Science:* Lieutenant AMADO MARTELINO

*Physical Training:* Instructor SIMON P. SANTOS

*Physician to the College:* Dr. SIXTO A. FRANCISCO

*Farm Engineer:* Mr. JOAQUIN RUIZ DE ARANA

*Chief Clerk and Disbursing Officer:* Mr. ALFREDO V. YÑIGUEZ

*Librarian:* Mr. BASILIO L. HERNANDEZ

*Property Clerk:* Mr. BENEDICTO ORDOÑEZ

*Secretary to the Dean:* Mr. JACINTO PIÑON

*Assistant Chief Clerk:* Mr. GREGORIO GOCO

*Assistant Registrar:* Mr. SIXTO F. VILLANUEVA

*Assistant Property Clerk:* Mr. CLEMENTE JULIANO

## CHAIRMEN OF STANDING COMMITTEES

*Publications:* The DEAN

*Curriculum:* The SECRETARY

*Graduate Study:* The DEAN

*Recorder of Thesis:* Dr. RAFAEL B. ESPINO

*Grounds and Buildings:* Prof. ANASTASIO L. TEODORO

*Athletic and Manila Representative of the College of Agriculture Faculty:*

Dr. BIENVENIDO M. GONZALEZ

*Sanitation:* Dr. SIXTO A. FRANCISCO

*College Mess:* Dr. MANUEL L. ROXAS

*Social Affairs:* Prof. MARIANO C. LOPEZ

*Library:* Dr. ROBERT L. PENDLETON

## BUSINESS DIRECTORY

*OFFICE OF THE DEAN AND DIRECTOR:* Room 1, Administration Hall, Los Baños College, Laguna, P. I.

*OFFICE OF THE SECRETARY:* Room 3, Administrative Hall, Los Baños College, Laguna, P. I.

## THE FACULTY OF INSTRUCTION

**RAFAEL PALMA, B.A., LL.B., LL.D.,**  
President.

**CHARLES F. BAKER, B.S., A.M.,**  
Dean, Professor of Tropical Agriculture, Director ex-officio,  
Experiment Station, and Acting Head, Department of Agron-  
omy.

**INOCENCIO ELAYDA, B.S.A., M.S.,**  
Director of the Extension Work (with rank of Professor).

**BIENVENIDO M. GONZALEZ, B.Agr., M.S., Sc.D.,**  
Professor and Head of the Department of Animal Husbandry.

**C. P. JOHNSON, B.S.,**  
Professor and Head of the Department of Rural Engineering.

**ROBERT L. PENDLETON, B.S., Ph.D.,**  
Professor of Soil Technology.

**MANUEL L. ROXAS, A.B., B.S.A., M.S., Ph.D.,**  
Professor and Head of the Department of Agriculture Organic  
Chemistry.

**RAFAEL B. ESPINO, B.Agr., Ph.D.,**  
Associate Professor and Acting Head, Department of Plant  
Physiology.

**VICENTE G. LAVA, A.B., M.S., Ph.D.,**  
Associate Professor of Chemistry.

**NEMESIO B. MENDIOLA, B.S.A. M.S., Ph.D.,**  
Associate Professor of Agronomy.

**FRANCISCO O. SANTOS, A.B., M.S., Ph.D.,**  
Associate Professor of Chemistry.

**LEOPOLDO B. UICHANCO, B.S.A., M.S., Sc.D.,**  
Associate Professor and Acting Head, Department of Entomol-  
ogy and Zoölogy.

**EMMA S. YULE, B.D.,**  
Associate Professor and Head of the Department of English.

**FELIPE T. ADRIANO, B.Agr., M.S.Chem.,<sup>1</sup>**  
Assistant Professor of Chemistry.

**CECILIO ALINCASTRE, A.B., B.S., M.S.,**  
Assistant Professor of Chemistry.

**FRANCISCO M. FRONDA, B.Agr., M.S., Ph.D.,**  
Assistant Professor of Poultry Husbandry.

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<sup>1</sup> On leave in the United States as University fellow.

**HILARIO G. HENARES, B.S.C.E., B.S.M.E.,**  
Assistant Professor of Sugar Engineering.

**AGUSTIN LLENADO, A.B., Ph.D., (Barcelona)**  
Assistant Professor of Modern Languages.

**MARIANO C. LOPEZ, B.F.S., M.A.,**  
Assistant Professor and Acting Head of the Department of  
Rural Economics, and Secretary of the College.

**GERARDO O. OCDEMIA, B.Agr., M.S., Ph.D.,**  
Assistant Professor and Acting Head of the Department of  
Plant Pathology.

**THOMAS F. O'LEARY, A.B.,**  
Assistant Professor of English.

**ELIAS H. PANGANIBAN, B.Agr., B.S.A., M.S., Ph.D.,**  
Assistant Professor of Chemistry.

**EDUARDO QUISUMBING, B.Agr., M.S., Ph.D.,**  
Assistant Professor of Plant Physiology.

**MARIANO B. RAYMUNDO, B.S.A.,**  
Assistant Professor of Agronomy.

**MANUEL A. ROA, A.B., B.S.,**  
Assistant Professor of Mathematics.

**CONSTANCIO P. RUSTIA, A.B., Ph.D.,**  
Assistant Professor of Zoölogy.

**ANASTACIO L. TEODORO, B.Agr., M.S.,**  
Assistant Professor of Rural Engineering.

**TORIBIO VIBAR, B.Agr., B.S.A., M.S., Ph.D.,**  
Assistant Professor of Agronomy.

**VALENTE VILLEGRAS, B.Agr., Ph.D.,**  
Assistant Professor of Animal Husbandry.

**VICENTE C. ALDABA, B.S.A., M.S.A., Sc.M., Sc.D.,**  
Instructor in Agronomy.

**TEODOSIO BUENAVENTURA, LL.B.,**  
Instructor in History.

**ESTEBAN COLLADO, B.Agr., B.S.A., M.S.A.,**  
Instructor in Chemistry.

**PEDRO A. DAVID, B.Agr., B.S.A., M.S.A.,**  
Instructor in Agronomy.

**VICENTE M. DAWIS, B.Agr., B.S.A.,**  
Instructor in Agronomy.

**JOSE P. ESGUERRA, B.Agr., B.S.A.,**  
Junior Animal Husbandman.

**RUTH PROPPER LAVA, Phar.G., Phar.Chem.,**  
Instructor in Mathematics.

**MARIANO MONDONEDO, B.S.A.,**  
Instructor in Animal Husbandry.

**PABLO N. MABBUN, B.S.A.,**  
Instructor in Economics.

**SEVERO J. MARIANO, B.Agr., M.S.,**  
Instructor in Agronomy.

**AMADO MARTELINO, (Lieutenant, P. S.)**  
Instructor in Military Science.

**FERNANDO DE PERALTA, B.Agr., B.S.A., M.S.A.,**  
Instructor in Plant Physiology.

**JACINTO S. PONCO, B.S.M.E.,**  
Instructor in Mathematics.

**EMILIANO F. ROLDAN, B.Agr., B.S.A., M.S.A.,**  
Instructor in Plant Pathology.

**SIMON P. SANTOS, LL.B.,**  
Instructor in Physical Education.

**FELIX B. SARAO, B.S.A., M.S.,**  
Instructor in Animal Husbandry.

**FLORENCIO A. SOLIVEN, B.Agr., B.S.A., M.S.A.,**  
Instructor in Chemistry.

**VICTOR SULIT, B.Agr., B.S.A., M.S.A.,**  
Instructor in Chemistry.

**ALEJO TALEON, B.S.A., M.S.A.,**  
Instructor in Animal Husbandry.

**JOSE E. VELMONTE, A.B., B.S.C.,**  
Instructor in Economics.

**DEOGRACIAS V. VILLADOLID, B.Agr., B.S.A., M.S.,<sup>1</sup>**  
Instructor in Entomology.

**MARGARET WILSON, A.B.,**  
Instructor in English.

**JULIAN A. AGATI, B.Agr., B.S.A.,**  
Assistant in Plant Pathology.

**BENEDICTO C. DE LAS ALAS, B.Agr., B.S.A.,**  
Assistant in Mathematics.

**DIONISIO I. AQUINO, B.Agr., B.S.A.,**  
Assistant in Agronomy.

**EUSEBIO BATACLAN, B.Agr.,**  
Assistant in Mathematics.

**PATERNO V. BAYAN, B.Agr.,**  
Assistant in Animal Husbandry.

**JOSE M. CAPINPIN, B.Agr., B.S.A., M.S.A.,**  
Assistant in Agronomy.

**PRIMO CARREON, B.Agr.,**  
Assistant in Rural Engineering.

**SILVERIO CENDANA, B.Agr., B.S.A.,**  
Assistant in Entomology.

**RAMON A. CRUZ, B.Agr., B.S.A.,**  
Assistant in Chemistry.

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<sup>1</sup> On leave in the United States as University fellow.

**FELIX M. ESGUERRA, B.Agr., B.S.A.,**  
Assistant in Extension Service.

**ROMAN P. ESTIOKO, B.Agr., B.S.A.,**  
Assistant in Plant Physiology.

**FERMIN J. GAMBOA, B.S.A., M.S.A.,**  
Assistant in Agronomy.

**LEON G. GONZALEZ, B.Agr., B.S.A., M.S.A.<sup>1</sup>**  
Assistant in Agronomy.

**SALUSTIANO S. GONZALEZ, B.Agr.,**  
Assistant in Entomology.

**ALEXANDER GORDON, B.Agr., B.S.A.<sup>2</sup>**  
Assistant in Rural Engineering.

**GETULIO A. GUANZON, B.S.A., (S.T.C.),**  
Assistant in Chemistry.

**FRANCISCO DE JESUS, B.S.A.,**  
Assistant in Chemistry.

**GREGORIO JOVEN, B.A., B.S.Chem.,**  
Assistant in Chemistry.

**JOSE JULIANO, B.S.A., M.S.A.,**  
Assistant in Plant Physiology.

**MAMERTA MANAHAN, Phar.Chem.,**  
Assistant in Chemistry.

**CANUTO C. MANUEL, B.Agr., B.S.A.,**  
Assistant in Entomology.

**ARTEMIO V. MANZA, B.Agr., B.S.A.,**  
Assistant in Plant Physiology.

**TEOFILO F. NOVERO, B.Agr., B.S.A.,**  
Assistant in Agronomy.

**MACARIO PALO, B.Agr.,**  
Assistant in Plant Pathology.

**JUAN PRONTO, B.Agr., B.S.A.,**  
Assistant in Chemistry.

**EDILBERTO PUNZALAN, B.Agr., B.S.A.,**  
Assistant in Agronomy.

**FIDEL M. REYES, B.Agr.,**  
Assistant in Physics.

**ANTONIO L. ROCAFORT, B.Agr., B.S.A.,**  
Assistant in Physics.

**PEDRO A. RODRIGO, B.Agr., B.S.A., M.S.A.,**  
Assistant in Agronomy.

**FRANCISCO M. SACAY, B.Agr.,**  
Assistant in Economics.

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<sup>1</sup> On leave in the United States as University fellow.

<sup>2</sup> On leave in the United States as pensionado.

**JUAN O. UNITE, B.Agr., B.S.A., M.S.A.,**  
Assistant in Agronomy.

**LEOPOLDO J. VILLANUEVA, B.Agr.,**  
Assistant in Chemistry.

**CALIXTO ZAMUCO, B.Agr.,**  
Assistant in Agronomy.

**JOSE BONDOC,**  
Teacher in Carpentry.

**ALBINO VIDAL,**  
Teacher in Blacksmithing.

# THE COLLEGE OF AGRICULTURE

## GENERAL INFORMATION

### HISTORY

The College of Agriculture was the first college to be organized as a part of the University (subsequent to the incorporation of the Old College of Medicine), beginning its class work June, 1909. During this year Dean Copeland brought to the site of the College twelve students, and instruction was begun in tents borrowed from the Bureau of Education. In October, 1909, the first temporary building was completed. The enrollment at the end of the first year was fifty-six. It was necessary for the faculty and students of that time to literally carve the institution out of the wilderness. The work of the early years was prodigious and stands as a permanent monument to the early pioneers. From its very small and dubious beginning the College has grown constantly until it now maintains a registration upward of six hundred fifty students, presents over one hundred courses of instruction divided into eight curricula and has a faculty of over eighty members. At the present time, it is the only fully developed University College of Agriculture in the tropics.

### LOCATION

The College of Agriculture is located on a first-class road, four kilometers from the town of Los Baños and two kilometers from the Junction Station on the Manila-South Railroad. It is readily accessible by motor car, by the southern branch of the railroad, and by the Yangco steamboat line on Laguna de Bay.

### ORGANIZATION

The College of Agriculture is organized to pursue the following main lines of activity: resident instruction, research, extension, and certain subsidiary coöperative services.

Resident instruction embraces nine general departments: Agricultural Chemistry, including Sugar Technology; Agronomy, including Horticulture, Farm Management, Genetics, and Soils; Animal Husbandry; English, including other Modern Languages; Entomology, including Zoölogy; Plant Pathology; Plant Physiology; Rural Economics, including Farm Accounting, and History and Rural Engineering, including Mathematics and Physics. Administration of instruction rests in the faculty and the Dean.

Research is carried on by the nine departments or by the subdepartments acting for the Experiment Station. Administration of research rests in the Director of the Experiment Station and the Faculty Executive Committee composed of the heads of the nine departments and subdepartments concerned.

The extension activity was sporadic and unorganized until 1921 when this important function was placed in the hands of a director, who for this purpose acts under the direction of the Dean with the coöperation of the various departments of the College. The present extension activities are entirely of an experimental and investigational nature and thus do not overlap the extension projects of other arms of the Government.

Service embraces: transportation, building construction, maintenance of property, and water and light service—all under the Department of Rural Engineering; maintenance of farm and campus under the Department of Agronomy; sanitation and health under immediate jurisdiction of the College Physician; graduate study, library, publications, curricula, athletics, and social activities administered by the Faculty. In all service arms the Dean maintains active authority.

Administration of College functions is effected by the Dean and Director through four entities; the Faculty, Secretary, Chief Clerk and Disbursing Officer, and Property Clerk.

The College of Agriculture interlocks with the College of Veterinary Science as follows:

General subjects of instruction are given for both Colleges in the College of Agriculture; Veterinary subjects in the Animal Husbandry Curricula are given by the College of Veterinary Science. The College of Agriculture also exchanges subjects with the Forest School.

#### EQUIPMENT

The College of Agriculture occupies and operates 377 hectares of land at the foot of Mount Maquiling, near Laguna de Bay, in the province of Laguna. Mount Maquiling and its foothills is held under the Bureau of Forestry as a Government reserve and this reserve constitutes the National Botanic Gardens.

The College has seventeen concrete buildings of permanent character and numerous temporary wooden and light material structures. The scientific departments are well equipped to carry on the essential instruction and research activities in tropical agriculture.

The Department of Agronomy possesses a well selected body of implements, tools, machine plows and cultivators, and three tractors. This department maintains a large number of cultures in constant progress and permanent plantings totalling about 25,000 trees and shrubs.

The Department of Animal Husbandry maintains herds of native, Indian, and Hereford cattle, carabaos, Indian milk buffaloes, swine, sheep, goats, and poultry.

The Department of Rural Engineering maintains a water system by which pure mountain water is delivered underground to all parts of the Campus, an electric light plant supplying light to residences and halls and power for the laboratories, well-equipped shops for instruction, construction, and repair, and three trucks.

This department also carries the construction of all buildings on the College Campus.

The Department of Chemistry has a model small scale sugar mill so complete as to enable the students to study each process in the manufacture of sugar and to perform "going" exercises in sugar technology.

The Department of Plant Pathology is fairly well equipped. This department possesses, by gift, the Baker Indo-Malayan Mycological Collection.

The Department of Entomology-Zoölogy possesses extensive and well arranged collections and carries a large amount of breeding and field work. The Hawaiian Sugar Planters' Association in 1921 presented a commodious and well furnished insectary which is a very important aid to the department. This Department has maintained extensive coöperative relations with the United States Department of Agriculture, the Hawaiian Sugar Planters' Association, and with local Bureaus.

The Department of Plant Physiology, in addition to other equipment, possesses an herbarium of above 20,000 sheets bearing largely on the local flora, and in part the gift of Dean C. F. Baker.

The Library is housed in a wing of the Academic Building and consists of some 5,600 bound volumes and 16,000 pamphlets on technical agriculture. The library receives annually above 1,000 numbers of periodicals and bulletins through exchange with *The Philippine Agriculturist*.

The value of the entire plant of the College of Agriculture is about ₱433,000. The average present annual cost for one student is about ₱600.

#### EXPERIMENT STATION

The Experiment Station of the College of Agriculture was established by Act No. 2730, of the Philippine Legislature and consists of approximately 300 hectares of land. The Dean of the College of Agriculture is Director of the Experiment Station. Since the establishment of the station, no funds have been appropriated for its operation. The present development of the station has been achieved through savings from funds, primarily educational. Much has been accomplished through vigorous departmental activity.

#### THE PHILIPPINE AGRICULTURIST

*The Philippine Agriculturist* was established in 1909 and has issued continuously to the present as the official organ of the College. The year's volume consists of ten numbers totalling 500 to 600 pages. It has published over 4,500 pages of original studies and investigations by the faculty and students of the College. The Student Body Association has voluntarily made subscription to the journal a prerequisite to membership.

#### ALUMNI ASSOCIATION

The alumni of the College of Agriculture are organized in the College of Agriculture Alumni Association, Inc. The President is Mr. Jose Zamora and the Secretary is Mr. Jose Q. Dacanay.

#### LIFE OF STUDENTS

The students of the College of Agriculture are housed in four ways: (1) in Government dormitories of which there are ten, holding from six to thirty-six each; (2) in the Y. M. C. A. and Mission dormitories; (3) in club houses built and owned by the students to the number of about twenty houses; and (4) in boarding and lodging houses in the Coconut Grove, San Antonio, and Los Baños.

The College operates a refectory for about one-third the total number of students. Many students run coöperative commissaries.

Faculty and students of the College own and operate the College Coöperative Co., Inc., which sells textbooks, school supplies, clothing, and groceries at low rates. Students are also stockholders in the Cine Maquiling which furnishes moving picture entertainments on Fridays.

All students are members of the Student Body Association which maintains effective control over all parochial, social, and athletic activities and assists effectively in the general discipline of the institution, constituting to a large degree a very democratic and practical self-governing community.

There are Protestant and Roman Catholic chapels on land adjoining the Campus.

The living expenses of the average of the College students fall between ₱20 and ₱25 a month. About one-third of the students work their own way, largely, as student laborers and assistants on the College pay roll. Many more are partially self-supporting. Students entering the College should in all cases come prepared to pay the necessary fees as prescribed on page 357 and should be prepared financially for at least the first four months, as it generally takes some time for the average student to get on a self-supporting basis.

#### MEDICAL ATTENDANCE

The College employs a physician and a graduate nurse who have offices and a dispensary on the Campus. Minor cases are treated locally, but students with serious or infectious diseases are sent to Manila to the Philippine General Hospital. No charge is made for local service or medicines furnished.

### REGULATIONS

#### ADMISSION

Applicants for admission to the College of Agriculture must present themselves in person to the Secretary during the period of registration, pass a physical examination to the satisfaction of the College Physician, make a deposit with the Disbursing Officer (₱15) pay in advance the incidental fees (₱8.40) and present scholastic credentials to the Secretary on one of the following bases:

(1) Bureau of Education forms or certificates, or University of the Philippines Form 1 showing completion of a high school or secondary course including: *Algebra*, 1½ units; *Biology*, *Botany*, or *Zoölogy* or a combination thereof, 1 unit; *Electives*, 5½ units; *English*, 3 units; *History*, 1 unit; *Physics*, 1 unit; *Plane Geometry*, 1 unit. If in the judgment of the Secretary the credentials are satisfactory, applicants on this basis are admitted to the common first year of the Bachelor of Science Curricula.

(2) Bureau of Education Form 137, or similar forms of private schools showing completion of the various intermediate school courses prescribed by the Bureau of Education of the Philippine Islands or equivalent courses in foreign schools. The question of equivalency is decided by the Dean. If in the judgment of the Secretary the credentials are satisfactory, applicants on this basis are admitted to the Preparatory Curriculum

(see page 386) and after completion thereof are regularly enrolled in the common first year of the Bachelor of Agriculture Curricula.

(3) Bureau of Education forms or certificates, or University of the Philippines Form 1 showing completions of a secondary agricultural course of the "Muñoz" type with additional credits as follows: *Algebra*, 1 unit, and *Plane Geometry*, 1 unit. If in the judgment of the Secretary the credentials are satisfactory, the applicants on this basis are admitted to the Muñoz Preparatory Curriculum during the summer preceding their first year and after completion thereof are regularly enrolled in the common first year of the Bachelor of Science Curricula with advanced standing in Agronomy 1 and Farm Experiences A, B, and C, but conditioned in Physics 1. (*This is not in effect at present as the Bureau of Education is not providing instruction in Algebra and Geometry in the agricultural schools.*)

(4) Bureau of Education forms or certificates or University of the Philippines Form 1 showing completion of a secondary agricultural course of the "Muñoz" type but without additional credits in mathematics. If in the judgment of the Secretary the credentials are satisfactory, applicants on this basis are admitted to the Bachelor of Science Curricula with advanced standing in Agronomy 1 and Farm Experiences A, B, and C, but conditioned in Mathematics 1, 2, and 3 and Physics 1. Such students are classified as freshmen when all conditions are removed.

(5) Bureau of Education or similar forms or certificates or University of the Philippines Form 1 showing completion of one, two, or three years of any recognized secondary course. If in the judgment of the Secretary the credentials are satisfactory, applicants on this basis are admitted to the Preparatory Curriculum with such advanced standing as their secondary records may warrant and after completion thereof are regularly enrolled in the common first year of the Bachelor of Agriculture Curricula.

(6) Registrants in the College of Agriculture who have completed at least 100 semester units of work of collegiate grade in the Bachelor of Agriculture Curricula or those who hold the degree of Bachelor of Agriculture are admitted to the Supplementary Curriculum.

(7) Candidates for the degree of Master of Science are admitted in accordance with the rules of the University.

(8) Special students, not to become candidates for degrees, are admitted at the pleasure of the Dean of the College.

#### ADVANCED STANDING

Advanced standing may be attained in any curriculum upon presentation of documentary evidence accepted by the Secretary as indicating completion of work substantially equivalent to that for which it is to stand in lieu and which has not been otherwise credited. Advanced standing is particularly applicable to students who have completed one, two, or three years of high-school work. The Secretary reports all grants of advanced standing in the Preparatory Curriculum at the first succeeding faculty meeting and at that time the faculty may correct or revoke the grant and require registration of the student.

#### ADVISERS

The Secretary serves as adviser for all students in their first year and for general curricula students until they have elected their major, from

which time until their graduation they are advised by their major professors. All sugar technology students, beginning in their second year, are advised by the head of the Department of Chemistry. All animal husbandry students, beginning in their second year are advised by the head of the Department of Animal Husbandry.

#### CLEARANCE OF COURSES

Students are required to clear all previous work before entering their second collegiate year in any curriculum. Exceptions to clearance may be granted by the Secretary in the case of special students, of regular students when a conflict of two or more subjects occurs, or of students in advance of their class.

#### DEGREES

Upon completion of the requirements in any one of the curricula and the presentation of proper clearance, the student is recommended to the University Council, and through that body to the Board of Regents of the University of the Philippines for graduation with degree as follows:

(1) For the Bachelor of Science General Curriculum, the Bachelor of Science Animal Husbandry Curriculum, and the Supplementary Curriculum, the degree of Bachelor of Science in Agriculture.

(2) For the Sugar Technology Curriculum the degree of Bachelor of Science in Sugar Technology.

(3) For the Bachelor of Agriculture General Curriculum and the Bachelor of Agriculture Animal Husbandry Curriculum the degree of Bachelor of Agriculture.

#### DIVISION OF COURSES

Courses which are complete in either semester and year courses carry a numerical designation such as *Agronomy 1*, *Agronomy 5*, *Plant Physiology 2*, etc. In such courses only one final rating and credit is given.

Courses which are given in two semestral parts carry a numerical and literal designation such as *Chemistry 2a*, *Chemistry 2b*, etc. In such courses credit may be obtained for either part separately, only a student without credit in first part cannot register for second part.

A year course may be given as a divided two-part course with the permission of the Dean.

#### ELECTION OF CURRICULUM

The high-school graduate who enrolls in the College discovers that there are three curricula open to him; the Bachelor of Science General Curriculum; the Bachelor of Science Animal Husbandry Curriculum; and the combined Six-year Animal Husbandry and Veterinary Curriculum. The first years of the first two curricula are identical and the student is not required to make immediate choice. Election is deferred until the beginning of the second year. Upon completion of the common first year course, he may select the Sugar Technology Curriculum, and be classified as a Freshman in that course, provided he meets the requirements prescribed for admission thereto.

The elementary school graduate who has completed the Preparatory Curriculum discovers that he may choose between the Bachelor of Agriculture General Curriculum and the Bachelor of Agriculture Animal

Husbandry Curriculum. However, the first years of the two curricula are identical. Election is reported at the beginning of the second collegiate year.

Election by the student of the specialized curricula, Sugar Technology and Animal Husbandry, is conditioned upon the approval of the Heads of the Department of Chemistry and Animal Husbandry, respectively. For sufficient cause, such approval may be withdrawn prior to the registration of the student for his junior year.

Students failing to report election are placed in the General Curricula.

### EXAMINATIONS

Six types of examinations are conducted under the following general regulations.

*University entrance examinations.*—Conducted in Manila and at Los Baños about the beginning of June of every year.

*Advanced standing examinations.*—The Dean may require any student claiming advanced standing to submit to a formal or informal examination to prove the claim, regardless of documentary evidence.

*Final examinations.*—Each formal course in the College ends with a written examination from which no exemption may be granted for any cause. A student absent from the final examination receives a rating of 5 in the course unless excused for valid reasons (illness, conflicting schedule, etc.) by the Dean, in which case he receives a rating of 4 in the course and is required to present himself for a subsequent condition or special examination.

*Condition examinations.*—Condition examinations, whenever required, are given for year courses and second semester courses during the first week of June of the succeeding school year and for first semester course during the first week of December subsequent to the close of the first semester. Condition examinations are open to students who have received the final rating of 4 due to excused absence from final examination or due to poor work in the course. Passing the condition examination satisfactorily raises the rating from 4 to 3. Failure to take or to pass the required condition examination lowers the rating from 4 to 5.

*Special examination.*—Special examinations may be granted by the Dean for any purpose which he may indicate, except that a student who has taken a condition examination and failed, may not be examined again in the course until he shall have repeated the entire course. The student is required to pay a fee of ₱10 for each special examination unless the same is remitted by the Dean in the case of a student excused from final examination because of illness, conflicting schedule, or other cases in which the student may not have been at fault.

*Oral examinations.*—Oral examinations for the Master's degree are scheduled and conducted by the Committee on Graduate Studies.

### FEES

No tuition is charged at the College of Agriculture. The educational opportunities offered are free to all students, foreign or native. There are no fixed laboratory fees; but each student is required to keep ₱15 always on deposit with the College to cover destruction and loss of property. Balances remaining in deposit are returned to the student when he leaves

the College. In addition, students are required to pay in advance of registration, certain incidental fees amounting to ₦8.40 for the school year.

#### HONORS

The College of Agriculture grants honors and distinctions to students who qualify under the rules given below. Honors do not apply to candidates for *Bachelor of Science in Agriculture* through the Supplementary Curriculum.

*Cum laude*.—The distinction *cum laude* shall be publicly declared and entered on the diploma of each student, a candidate for the degree of *Bachelor of Agriculture* or of *Bachelor of Science in Agriculture*, who: (1) shall have taken three quarters of the total units of credit required for the degree in the College of Agriculture; (2) shall have received no rating of 4 or 5 in any course taken in the College of Agriculture, whether or not such course is presented for degree; (3) shall have an average rating of from 2 to 1.24 inclusive in all work presented for degree; and (4) shall have any required thesis or theses duly approved.

The average rating shall be computed by multiplying the rating in each course taken in the College of Agriculture and presented for degree, except thesis, by the number of units carried by such course; adding the products so obtained; and dividing the sum of the products by the total number of units carried by all courses taken in the College of Agriculture and presented for degree, except thesis. In computing the average rating, if a student shall have more free electives, that is, electives not prescribed for major, than need be presented for degree, such free electives or combination of free electives which will result in the most favorable average rating shall be taken. The number of free electives considered for degree shall not be greater than necessary to complete the total number of units less the number of units carried by thesis, required for the degree sought. Computation of average ratings shall be made by the Secretary and presented to the Faculty, who shall be free to determine the accuracy of the same.

*Magna cum laude*.—The distinction *magna cum laude* shall be publicly declared and entered on the diploma of each student, a candidate for the degree of *Bachelor of Agriculture* or *Bachelor of Science in Agriculture*, who: (1) shall have taken three quarters of the total units of credit required for the degree in the College of Agriculture; (2) shall have received no rating of 4 or 5 in any course taken in the College of Agriculture, whether or not such course is presented for degree, and (3) shall have an average rating of from 1.24 to less than 1 inclusive in all work presented for degree; and (4) shall have any required thesis or theses duly approved. The average rating shall be computed as for the distinction *cum laude*.

*Summa cum laude*.—The distinction *summa cum laude* shall be publicly declared and entered on the diploma of each student, a candidate for the degree of *Bachelor of Agriculture* or *Bachelor of Science in Agriculture*, who: (1) shall have taken all units of credit required for the degree in the College of Agriculture; (2) shall have received the rating of 1 plus no fraction in all courses taken in the College of Agriculture, whether or not any such course is presented for degree; and (3) shall have any required thesis or theses duly approved.

*Faculty Medal of Merit.*—The "Faculty Medal of Merit" shall be publicly declared but not entered on the diploma of such one student who, having completed all requirements for the degree of *Bachelor of Agriculture* or *Bachelor of Science in Agriculture*, shall be selected by a committee of the Faculty of the College of Agriculture consisting of the Dean, the Secretary, the Heads and Acting Heads of all Departments of the College. The selection shall be based on scholarship, accomplishment in athletics, qualities of leadership, moral character, manliness, and promise of good citizenship. The award may not be made, unless the Faculty of the College of Agriculture shall provide a suitable medal.

*The Gonzalez Medal.*—Mr. Joaquin J. Gonzalez of Apalit, Pampanga, an alumnus, established in 1925 a medal to be awarded upon recommendation of the faculty to the graduating student who has the highest academic average for his entire course. The average is computed in the same manner as for *cum laude*. The medal is not necessarily awarded every year.

#### MAJORS

In the Bachelor of Science General, the Bachelor of Science Animal Husbandry, the Bachelor of Agriculture General, and the Bachelor of Agriculture Animal Husbandry Curricula thirty units are assigned to major. The majors are prescribed by the head of the department in which the student makes his election. Election of major in any curricula must be made at or prior to the beginning of the student's third year of college work. At this time the head of the department in which the student has elected to major will prescribe a definite schedule of courses covering the thirty units and including a thesis carrying ten units.

Students in the Animal Husbandry Curricula major in poultry, swine, cattle, dairy, or horse husbandry. Students in the Sugar Technology Curriculum have no major.

To illustrate plan of majors as enforced in the College of Agriculture the following typical prescribed majors are given from the records of the Agronomy department.

*Major in Tobacco.*—Third year: Agronomy 10 and 12. Fourth year: Agronomy 7 or 9; 8; and 100.

*Major in Sugar Cane.*—Third year: Agronomy 10 and 22. Fourth year: Agronomy 7 or 102; 8; and 100.

*Major in Oil Plants.*—Third year: Agronomy 15 and 16. Fourth year: Agronomy 7 or 10; 8 or 10; or Plant Physiology 101; and 100.

*Major in Plant Breeding.*—Third year: Agronomy 7 and 8. Fourth year: Agronomy 13 or 19; 10 or 22; and 100.

*Major in Pomology.*—Third year: Agronomy 19; 7 or 9; 8 or 102; and 100.

#### MEMORANDUM GRADES

Memorandum grades are reported for each student in all courses except those numbered 99, 100, 199, and 300 on the following approximate dates: August 1; September 1; October 5; November 15; December 15; and March 1. On the basis of these grades the scholarship rules are enforced. Failure of a department to report any memorandum grade results automatically in the recording of a 5.

**MILITARY SCIENCE**

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

**PHYSICAL TRAINING**

Students of the College are required to take Physical Training during every year of residence. Exemption from physical training is granted for the same causes and in the same manner as for military science, except that foreign students are required to take physical training. Credits in physical training do not count towards a degree.

**PREREQUISITES**

Prerequisites for any course unless designated in the description thereof are determined as follows: (1) General prerequisites constitute all subjects of the same department assigned in the regular curricula for a previous year. These prerequisites may be set aside by the Dean upon recommendation of the Secretary. (2) For any subjects not required in any curriculum, prerequisites are at the pleasure of the head of the department in which the subject is given.

**PROPERTY CLEARANCE**

Before leaving the Campus of the College of Agriculture at the end of the school year; when leaving school, or upon being sent down by suspension, expulsion, or for physical disability, a student is required to obtain a property clearance from the head of each department, the librarian, storekeepers, property officers, the Secretary, and the disbursing officer of the College. Failure to accomplish clearance renders a student liable to civil action.

**RATINGS**

Official ratings in the College of Agriculture are as follows:

*Rating of 1.*—The rating 1 is given as an indication of marked excellence in the course.

*Rating of 2.*—The rating of 2 is given as an indication of thoroughly satisfactory work in the course.

*Rating of 3.*—The rating of 3 is given as an indication of passing work in the course.

*Rating of 4.*—The rating of 4 is given as an indication of:

(a) Poor or conditioned work in which case the 4 may be raised to 3 or lowered to 5 as a result of condition or special examination or as a result of work done during a special coaching class given during the summer session. Failure to remove the rating of 4 at the earliest opportunity automatically lowers the 4 to 5.

(b) Incomplete laboratory or field work, in which case the 4 may be raised to 3 upon satisfactory completion of the work. Failure to complete within one year from date automatically lowers the rating to 5.

• *Rating of 5.*—The rating of 5 is given as an indication of failure. The entire course must be repeated with satisfactory results if credit is to be

obtained. Any student receiving the rating of 5 twice in the same course is liable to dismissal from the College.

#### RENTAL RATES

Rooms in the College cottages and dormitories are rented at \$2 a month for each occupant. Three or four persons may be assigned to one room. The occupants of each room pay for electric lights at the rate of \$1 for each 32 watt light. All bills are payable monthly in advance.

#### SCHOLARSHIP RULES

##### CHANGES IN REGISTRATION.—

Changes in registration except for compulsory dropping of courses are not permitted after July 31 of the current year in first semester or year courses, or after November 30 in second semester courses.

**DROPPING OF COURSES.**—Dropping of courses is accomplished by: (1) Election of the student on or before July 31 or November 15 of the current school year. In this case no rating is given for the subject. (2) Compulsion initiated by the Dean, Secretary, or the adviser of the student concerned because of illness, outside work, or ill-advised registration. In this case no rating is given for the subject. (3) Compulsion initiated by the Secretary because of delinquency. In this case a final rating of 5 is recorded.

**DELINQUENCY.**—An average of ratings and check is made on the basis of June, July, and August reports of instructors and at least every three months thereafter. If at any such period a student has an average rating of 5 in one course or of 4 in two courses he is designated as delinquent and receives first warning.

**PROBATION.**—If a student delinquent in any course does not show marked improvement therein at the next subsequent check period he is dropped from the course, receives a final rating of 5 therein, is placed on probation, and receives second warning. Students on probation may not continue in the employ of the College either as assistants or laborers.

**EXTREME DELINQUENCY.**—Extreme delinquency is designated for those students who at any check period have an average rating of 5 in two courses, 5 in one course and 4 in two courses, or 4 in four courses, or 4 or 5 in all their courses. A student under this designation need not have been previously under *delinquency* or on *probation*. Students designated under extreme delinquency are suspended from the College.

**REMOVAL OF EXTREME DELINQUENCY.**—For suitable cause the Dean of the College may release a student from the penalty of extreme delinquency, but the student remains so designated until his scholarship shows great improvement.

#### SPECIAL PROBLEMS COURSES

Each department, except the Department of English, describes a course under the number 99 which has for its purpose the accomplishment by the student of an assigned problem in investigation, verification, completion, or collection. A satisfactory report is required to complete the course. The 99 courses are not elective but must be assigned by the department head with the approval of the Dean. Such courses may carry from one to six units of credit as may be granted by the head of the department with the approval of the Dean. In case of unsatisfactory results credit will not be allowed.

#### UNDERGRADUATE THESES

Each major includes a thesis based upon original investigation by the student, approved by the Faculty and reported under the number 100. A thesis carries a credit of ten units in all curricula. The thesis outline must be presented by the student to the Secretary on call through the Head of the Department. The preliminary outline is approved by the Dean before the student begins his actual work on the thesis. The thesis may

cover one or two years and may include one or two summer assignments. The report of investigation is prepared under the adviser, in all matters of form according to TRELEASE and YULE—*Preparation of scientific and technical papers*. A preliminary typewritten copy is passed through the adviser, a critic, and the Department of English; if accepted, four typewritten copies are deposited with the Recorder of Theses at least two weeks prior to the student's graduation.

### UNITS

The unit or semester hour of credit in the College of Agriculture is defined as one lecture, decitation, or quiz of fifty minutes duration or the equivalent thereof in laboratory, field, or shop work. Laboratory, field or shop work is credited at the rate of one unit for each three-hour period, part or all of one hour of which may be assigned outside of class hours, such as field trips or specimen collecting.

### WEEK-HOURS

The week-hour as used in the schedule of curricula is equivalent to one period of fifty minutes weekly in lecture, recitation, quiz, laboratory, shop, or field required in formal instruction. No week-hour requirement is designated for theses, special problems, and some of the more advanced instruction in which the work is primarily research.

## DESCRIPTION OF COURSES

### DEPARTMENT OF AGRICULTURAL CHEMISTRY

Professor ROXAS<sup>1</sup> (Head); Associate Professors LAVA and SANTOS (Acting Head); Assistant Professors ADRIANO (on leave) and PANGANIBAN, Instructors COLLADO, SOLIVEN, and SULIT; Assistants CRUZ, DE JESUS, JOVEN, MANAHAN, PRONTO, and VILLANUEVA

### FOR UNDERGRADUATES

Agricultural Chemistry 1 (AChem 1); *GENERAL CHEMISTRY*.—A study of the fundamental principles of general chemistry with a brief study of organic chemistry and some qualitative analysis. Three lectures and six hours of laboratory work weekly. Required in all curricula and in the College of Veterinary Science and Forest School.

Prerequisite: High School Physics or Physics 1.

Throughout the year, credit 10 units.

Agricultural Chemistry 2a (AChem 2a); *ELEMENTARY QUALITATIVE ANALYSIS*.—A review of the theories of solution as bases for qualitative analysis; separation into groups and the identification and confirmatory tests of the elements with which students of agriculture should be familiar. Text: An abridged outline adapted from NOYES—*Qualitative Chemical Analysis*. Three lectures and six hours of laboratory work weekly. Required in all curricula except the combined Animal Husbandry and Veterinary Curriculum.

Prerequisite: Agricultural Chemistry 1.

First semester, credit 5 units.

<sup>1</sup> On duty first semester only.

## SEMESTRAL COURSES: AGRICULTURAL CHEMISTRY 363

Agricultural Chemistry 2b (AChem 2b); *ELEMENTARY QUANTITATIVE AND AGRICULTURAL ANALYSIS*.—Fundamental operations in quantitative analysis and the determinations of the proximate constituents of agricultural products, such as food stuffs, soils, fertilizers, and insecticides as well as the proper interpretation of the results of analyses. Texts: TALBOT—*Quantitative Chemical Analysis*; LINCOLN and WALTON—*Quantitative Agricultural Chemical Analysis*. Three lectures and six hours of laboratory work weekly. Required in all curricula except the combined Animal Husbandry and Veterinary curriculum.

Prerequisite: Agricultural Chemistry 2a.

Second semester, credit 5 units.

Agricultural Chemistry 3 (AChem 3); *COMPOUNDS OF CARBON*.—Preparation, properties, and structure of typical organic compounds, and includes a discussion of theories of reaction in their bearing on the formation of these compounds. Text: Notes prepared by the Department. Three lectures and six hours of laboratory work weekly. Required in the Sugar Technology Curriculum and the College of Veterinary Science and Forest School.

Prerequisite: Agricultural Chemistry 1.

Throughout the year, credit 10 units.

Agricultural Chemistry 4 (AChem 4); *THEORETICAL CHEMISTRY*.—The elements of physical chemistry. Texts: GETMAN—*Outlines of Theoretical Chemistry*; FINDLAY—*Practical Physical Chemistry*. Two lectures and three hours of laboratory work weekly. Required in the Sugar Technology Curriculum.

Prerequisites: Agricultural Chemistry 2 and 3.

First semester, credit 3 units.

Agricultural Chemistry 5 (AChem 5); *INDUSTRIAL CHEMISTRY*.—A study of the important chemical industries; special attention being given to oils, starches, and sugar. Trips to industrial plants in Manila and vicinity are required. Text: THORP—*Outlines of Industrial Chemistry*. Two lectures and three hours of laboratory work weekly. Required in the Sugar Technology Curriculum.

Prerequisites: Agricultural Chemistry 2 and 3.

First semester, credit 3 units.

Agricultural Chemistry 6 (AChem 6); *CHEMISTRY OF THE SUGARS*.—A study of the occurrence, structure, properties, and methods of analysis of the more important sugars found in plants and animals. Emphasis is laid on those that have particular application to the industries. Text: BROWNE—*Handbook of Sugar Analysis*. The course requires three lectures and six hours of laboratory work weekly. Elective.

Prerequisite: Agricultural Chemistry 4.

First semester, credit 5 units.

Agricultural Chemistry 99 (AChem 99); *SPECIAL PROBLEMS IN CHEMISTRY*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Agricultural Chemistry 100 (AChem 100); *UNDERGRADUATE THESIS IN CHEMISTRY*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units.

#### FOR UNDERGRADUATES AND GRADUATES

Agricultural Chemistry 101 (AChem 101); *ADVANCED AGRICULTURAL ANALYSIS* (Foods and Feeds).—Reference: *Methods of Analysis of the Association of Official Agricultural Chemists*. The course requires one lecture and six hours of laboratory work weekly. Required in the Sugar Technology Curriculum.

Prerequisites: Agricultural Chemistry 2 and 3.

First semester, credit 3 units.

Agricultural Chemistry 102 (AChem 102); *ADVANCED AGRICULTURAL ANALYSIS* (Soils, Fertilizers and Insecticides).—Reference: *Methods of Analysis of the Association of Official Agricultural Chemists*. One lecture and six hours laboratory work weekly. Required in the Sugar Technology Curriculum.

Prerequisites: Agricultural Chemistry 2 and 3.

Second semester, credit 3 units.

Agricultural Chemistry 199 (AChem 199); *SEMINAR IN CHEMISTRY*.—The seminar consists of review and discussion of current literature in chemistry. Reports are required. One meeting each week. Open to senior, thesis, and graduate students.

General section; throughout the year, credit 2 units.

#### FOR GRADUATES

Agricultural Chemistry 300 (AChem 300); *MASTER'S THESIS IN CHEMISTRY*.—Credit for Master's theses is recorded under the number 300.

By arrangement, credit 10 units.

### SUGAR TECHNOLOGY

Professor ROXAS; Assistant Professors ALINCASTRE and HENARES; Instructor MARIANO; Assistant GUANZON

Sugar Agronomy 1 (SAgron 1); *CANE FIELD PRACTICE*.—This course is designed to give the students actual experience in designing drainage and irrigation canals for sugar-cane fields and in laying out experimental fields for variety and fertilizer tests. The course, which is open only to sugar technology students, is given partly in the summer between the second and third years, and partly at the beginning of the second semester of the third year while the students are waiting for the college milling season to open in January. The course covers a total of 216 hours of field work.

Credit 3 units.

Sugar Technology 2 (STech 2); *TECHNICAL SUGAR ANALYSIS*.—Principles of and laboratory exercises in technical and commercial analyses of sugar and sugar house products. The lectures include discussion of precision of measurements, principles and limitations of each piece of ap-

paratus and each reagent; while the laboratory is intended to familiarize the students with the practical applications in the laboratory of the principles studied with special reference to chemical control in a cane sugar factory. Text: Notes prepared by the Department. Three lectures and six hours of laboratory work weekly. Required in the junior year, Sugar Technology Course.

First semester, credit 5 units.

Sugar Technology 3 (STech 3); *FACTORY MANAGEMENT*.—A detailed study of operation of machinery and equipment of a factory producing raw sugar from cane. The different phases of manufacture are discussed with special emphasis on factors affecting efficiency. The laboratory work consists in preparing reports and sugar accounting. Textbook: NOEL DEERR—*Cane Sugar*; Notes prepared by the Department. The course requires three lectures and six hours of laboratory work weekly. Required in the senior year of the Sugar Technology Course.

First semester, credit 5 units.

Sugar Technology 4 (STech 4); *THERMODYNAMICS*.—Elementary consideration of behavior of gases. Theory of vaporization, steam engine, air compressor, refrigerating machinery, evaporating, condensing and cooling apparatus. Three lectures and six hours laboratory work weekly. Required in Sugar Technology Curriculum. Text: GOODENOUGH—*Principles of Thermodynamics*; HAUSBRAND—*Evaporating, Condensing, and Cooling Apparatus*. Prerequisites: Rural Engineering 1, Agricultural Chemistry 1, Physics 3 and Mathematics 102.

First semester, credit 5 units.

Sugar Technology 5 (STech 5); *SUGAR MACHINERY DESIGN*.—Calculation and preparation of a layout of machinery for a complete sugar mill plant. The work is carried on by means of data possessed by the Department and by reference to various catalogues and authorities on the subject. Three lectures and six hours laboratory work weekly. Required in Sugar Technology Curriculum. References: DEERR—*Sugar Cane*; HAUSBRAND—*Evaporating, Condensing, and Cooling Apparatus; Mechanical Engineer's Handbook*.

Prerequisite: Sugar Technology 4.

First semester, senior year, 5 units.

Sugar Technology 7 (STech 7); *MILL PRACTICE "B"*.—This course is intended to train the students for factory foremanship and position of bench chemist. Each student is required to work as labor hand, for a definite period, in every department of the factory. Seventy-eight hours weekly at the U. P. Sugar Mill. Required in the junior year of the Sugar Technology Course.

Prerequisite: Sugar Technology 4.

One college milling season, credit 17 units.

Sugar Technology 7 (STech 7); *MILL PRACTICE "B"*.—This course is a continuation of Sugar Technology 6. Whenever possible, it will be required that the work be taken in some commercial mill. Full shift time. Required in the senior year of the Sugar Technology Course.

Prerequisite: Sugar Technology 6.

One whole milling season, credit 20 units.

Sugar Technology 100 (STech 100); *SUGAR TECHNOLOGY THESIS*.—Investigations of problems either in pure chemistry of the sugars, in agronomy of sugar cane, or manufacturing problems. Required of students taking Sugar Technology Course; elective for other students. Twelve hours a week.

Two semesters, credit 10 units.

Sugar Technology 199 (STech 199); *SEMINAR*.—A one-hour weekly discussion of topics dealing either with chemistry or production of cane sugar. The course is designed principally, to introduce the students to a systematic use of references and to familiarize them with the current literature on the subject. Each student is required to make at least one complete report on some topic, assigned by the member of the faculty in charge, each semester. Required of both junior and senior students and members of the University faculty are welcome to the discussions.

Two semesters, credit 2 units.

#### DEPARTMENT OF AGRONOMY

Professors BAKER (Acting Head) and PENDLETON; Associate Professor MENDIOLA; Assistant Professors RAYMUNDO and VIBAR; Instructors ALDABA, DAVID, and DAWIS; Assistants ABAD, AQUINO, CAPINPIN, GAMBOA, GONZALEZ (on leave), NOVERO, PUNZALAN, RODRIGO, UNITE, YANGO, and ZAMUCO.

#### FOR UNDERGRADUATES

Agronomy 1 (Agron 1); *SEASONAL FARM PRACTICE*.—Designed to give experience and practice in a great diversity of farm operations and in the care and culture of many crops. Most of the students who come to the College have not had much experience in modern methods of farming. To supply this need and give the students some familiarity with the crops which he is to study and the tools and implements with which he is to work, this course is provided during his first year of residence and is supplemented by Farm Experience A which is given during the summer session. Six hours of field work weekly. Required in all curricula.

Throughout the year, credit 4 units.

Agronomy 2 (Agron 2); *AGRICULTURAL GEOLOGY*.—Elementary geology, including a study of the minerals, rocks, and their products which make up the earth's crust; the agencies and processes altering these materials; physiography and the study of typical land forms; the origin, formation, and occurrence of soils with reference to the Philippine Islands; and the climate of the Philippines. Text used: TARR and MARTIN—*College Physiography*. Three lectures a week. Required in all curricula. Concurrent, Agricultural Chemistry 1.

First semester, credit 3 units.

Agronomy 3 (Agron 3); *ELEMENTARY SOIL SCIENCE*.—Soils, including soil forming minerals, processes of soil formation; physical and chemical properties of soils; soil fertility and the factors affecting it. Text: LYON and BUCKMAN—*The Nature and Properties of Soils*. Five lectures weekly, with occasional field excursions. Required in general curriculum.

Prerequisites: Agronomy 2 and Agricultural Chemistry 1.

First semester, credit 5 units.

Agronomy 4a (Agron 4a); *PRINCIPLES OF CROP PRODUCTION*.—The course is an elementary study designed to give the student an introduction to the study of agriculture, covering the relation of climate to crops, tillage, soil treatment, manures, irrigation, drainage, judging, grading, and testing of seeds, value of good seeds, seeding, germination, plant development, repressive agencies, harvesting, and cost of production. Three lectures and six hours of laboratory work weekly. Required in all curricula.

Prerequisite: Agronomy 3.

First semester, credit 5 units.

Agronomy 4b (Agron 4b); *PRINCIPLES OF CROP PRODUCTION*.—Covering a study of field crops and their culture, crop centers, forage plants, meadows and pastures, special purpose crops, adaptation of crops, crop improvement, value of good varieties, choice of crops, preservation, storage and marketing of plant products, crop reports and estimates. Three lectures and six hours of laboratory work weekly. Required in General and Animal Husbandry Curricula.

Prerequisite: Agronomy 4a.

Second semester, credit 5 units.

Agronomy 5 (Agron 5); *SURVEY OF PHILIPPINE CROPS*.—A brief survey of more important Philippine crops as an introduction to technical agronomy. The economic importance of each crop treated: relation to domestic consumption and export, and cultural requirements. Five lectures weekly. Required in the General and Animal Husbandry Curricula.

Prerequisite: Agronomy 2.

Second semester, credit 5 units.

Agronomy 7 (Agron 7); *PRINCIPLES OF BREEDING*.—A study of the laws underlying the breeding improvement of plants and animals and the relation of these laws to the science of eugenics. The course aims to give the students a knowledge of the facts and phenomena of variation and heredity and their relation to environment. Organic evolution, inheritance of acquired characters, pure line and Mendelian heredity, mutations, natural and artificial selection are discussed. The students are trained in elementary biometry which includes statistical treatment of variation, correlation, and heredity. Three lectures and six hours of laboratory work weekly. Required in the Sugar Technology and Animal Husbandry Curricula.

Prerequisite: Agromony 4.

First semester, credit 5 units.

Agronomy 8 (Agron 8); *METHODS OF BREEDING TROPICAL CROPS*.—A study of the different methods and achievements in plant breeding, especially in the tropics. Special attention is paid to the amelioration by selection and hybridization, of rice, corn, sugar cane, tobacco, sweet potato, and minor Philippine crops. Text: MENDIOLA—*A Manual of Plant Breeding for the Tropics*. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite: Agronomy 7.

Second semester, credit 5 units.

Agronomy 9 (Agron 9); *FARM MANAGEMENT*.—The principles underlying farm management, including studies of cost of production; farm

organization; farm finance; farm labor; land utilization and farm life studies in the Philippines; uses of machinery based on Philippine conditions; and the marketing of farm products. Text: G. F. WARREN—*Farm Management*. Lectures and classroom work are supplemented with field studies on the College farm and with inspection trips. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisites: Agronomy 4, Rural Economics 3, and Rural Engineering 1.

First semester, credit 5 units.

Agronomy 10 (Agron 10); *SOIL PHYSICS AND MANAGEMENT*.—The physical properties of soils and their possible amelioration, with special reference to management for increased crop production. Soil surveys and soil mapping. Three lectures and six hours of laboratory and field work weekly and occasional field trips. Elective.

Prerequisite: Agronomy 3.

First semester, credit 5 units.

Agronomy 11 (Agron 11) *COFFEE, CACAO, AND SPICES*.—A study of coffee, cacao, and spices, covering the following subjects in detail: history, geographical distribution, climatic requirements, botany and nomenclature, varieties, selection of land, nurseries, planting, shading cultivation and manuring, pruning and sanitation, harvesting, fermentation, washing, drying, diseases and enemies, selection, uses and value of the products, production in the Philippines and elsewhere. Extensive practice in the College cultures is required of every student. Trips to coffee and cacao growing districts required. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite: Agronomy 4.

First semester, credit 5 units.

Agronomy 12 (Agron 12); *TOBACCO*.—A comprehensive account of the tobacco industry in the Philippines and its relation to that of other countries. Special attention to the culture, curing, selection, and diseases of the tobacco plant. Students are required to conduct their own field cultures. Visit to Manila cigar factories required. Three lectures and six hours of laboratory or field work weekly. Elective.

Prerequisite: Agronomy 4.

Second semester, credit 5 units.

Agronomy 13 (Agron 13); *CEREALS AND FIELD LEGUMES*.—A study of the more important cereal and leguminous crops of the Philippine Islands. Special emphasis placed upon rice and corn as representative of the cereals and upon the leguminous crops of great value for food, forage, or cover crops under tropical conditions. Lectures and laboratory work supplemented with field studies and experience in planting, care, harvesting, and milling. Field trips to nearby rice regions. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite: Agronomy 4.

Throughout the year, credit 10 units.

Agronomy 14 (Agron 14); *FORAGE AND PASTURE PLANTS*.—A study of forage and pasture plants and their identification, culture, and utility. Native and introduced plants of known or of possible value for

pasture or for forage studied. Field work includes a study of zacate and other forage crops in the Los Baños region. Three lectures and nine hours of laboratory and field work weekly.

Prerequisite: Agronomy 4.

Second semester, credit 5 units.

Agronomy 15 (Agron 15); *FIBERS*.—This course consists of two supplementary parts; namely, Fiber Production and Fiber Technology. The first part takes into consideration the operations involved in the economic production of the important fibers, laying emphasis on those that are or may be produced in the Philippines and on those that are serious competitors of Philippine fibers in the world's market. The second part includes the identification, uses, and grading of fibers. Special attention is given to abaca in both parts of the course. The classes in this course and Agronomy 16 are arranged so that the students may take both concurrently in the same year. Two lectures and four hours of laboratory and field work weekly during the first semester and one lecture and two hours of laboratory and field work weekly during the second semester. Elective.

Throughout the year, credit 5 units.

Agronomy 16 (Agron 16); *OIL PLANTS*.—Special emphasis is given to the study of the coconut; its diseases and their treatment; all the steps in its proper cultivation, harvesting, and preparation for market, in the Philippines and elsewhere; and the uses and value of the products. Other oil plants are studied in the same way though more briefly. The course is arranged to be taken concurrently with Agronomy 15. One lecture and two hours of laboratory and field work weekly during the first semester and two lectures and four hours of laboratory and field work weekly during the second semester. Elective.

Throughout the year, credit 5 units.

Agronomy 17 (Agron 17); *RUBBER*.—A study of commercial rubber production including planting, cultivation, and care of the trees, the gathering of latex, and the production of crude rubber. Two lectures and three hours of laboratory work. Elective.

First semester, credit 3 units.

Agronomy 18 (Agron 18); *TROPICAL OLERICULTURE*.—A study of the principles and practice of vegetable production under tropical conditions with reference to strictly tropical vegetables and also to those of the temperate zones which may be successfully cultivated in the Philippines. Emphasis is laid upon the cultural side and students are required to carry the crops through from seed to maturity. Inspection trips to vegetable gardens in Manila and vicinity required. Elective.

Prerequisites: Agronomy 4 and Plant Physiology 2.

Second semester, credit 5 units.

Agronomy 19 (Agron 19); *TROPICAL POMOLOGY*.—A study of the important fruits found in the tropics and the natural and cultural requirements for their successful production. Special attention given to fruits in commercial culture in the Philippines and to those which give promise for large commercial importance, including the banana, pineapple,

mango, citrus fruits, avocado, lanzon, papaya, and chico. Three lectures and six hours of laboratory and field work weekly. Elective.

Prerequisites: Agronomy 4 and Plant Physiology 2.

Throughout the year, credit 10 units.

Agronomy 22 (Agron 22); *SUGAR CANE*.—The culture of sugar cane as practiced in different countries, with special reference to cane production in the Philippines. Correlated with the activities in sugar cane breeding. Visits to sugar plantations and centrals in the vicinity of the College required. Three lectures and six hours of laboratory and field work weekly.

Second semester, credit 5 units.

Agronomy 23 (Agron 23); *ADVANCED SUGAR-CANE BREEDING*.—A thorough study of sugar-cane varieties in the Philippines and the production of new and better ones for different cane regions by raising and selecting seedlings, which are either natural or artificial hybrids. Field selection of cane sports, plant, and cane points is included. Required in the Sugar Technology Curriculum. Two lectures and four hours of laboratory work.

Prerequisite: Agronomy 7.

Second semester, credit 3 units.

Agronomy 99 (Agron 99); *SPECIAL PROBLEMS IN AGRONOMY*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Agronomy 100 (Agron 100); *UNDERGRADUATE THESIS IN AGRONOMY*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units.

Farm Experience A (FExper A); *SUMMER FARM PRACTICE*.—An intensive course given during the summer for the purpose of increasing the student's experience with the things of the farm and garden at a time when he can devote himself quite fully to this very essential phase of his training. Fifteen hours of field work weekly for eight weeks. No definite grade or credit is given but certification of completion is prerequisite to graduation. Required in all curricula except the Sugar Technology Curriculum.

Summer, informal credit.

#### FOR UNDERGRADUATES AND GRADUATES

Agronomy 102 (Agron 102); *SOIL FERTILITY*.—Soil chemistry and the principles of crop production; maintenance and improvement of the fertility of the soil; theory and practice of crop rotations; manuring, including the use of commercial fertilizers; and the practical bearing of these matters on Philippine Agriculture. Text: RUSSELL—*Soil Conditions and Plant Growth*. Three lectures and six hours of laboratory and field work weekly. Elective. Required for thesis students in soils.

Prerequisites: Agronomy 10, Plant Pathology 2, and Agricultural Chemistry 2. Concurrent: Agricultural Chemistry 102.

Second semester, credit 5 units.

Agronomy 199 (Agron 199); *SEMINAR IN AGRONOMY*.—A review and discussion of current literature in agronomy with presentation of papers. All members of the agronomy faculty and certain advanced students participate. Only seniors, thesis students, and graduates are eligible.

Throughout the year, credit 2 units.

#### FOR GRADUATES

Agronomy 300 (Agron 300); *MASTER'S THESIS IN AGRONOMY*.—Credit for Master's theses is recorded under the number 300.

By arrangement, credit 10 units.

### DEPARTMENT OF ANIMAL HUSBANDRY

Professor GONZALEZ (Head); Assistant Professors FRONDA and VILLEGRAS; Instructors MONDOÑEDO, SARAO, and TALEON; Junior Animal Husbandman ESGUERRA; Assistant BAYAN

#### FOR UNDERGRADUATES

Animal Husbandry 1 (AHus 1); *GENERAL PRINCIPLES OF ANIMAL HUSBANDRY*.—The lectures deal with the teaching of the fundamental principles and practice of animal husbandry in all its phases: Feeding, breeding, housing, care and management, and the prevention and control of epizootics. The laboratory work consists mainly of judging the different classes, types, and breeds of farm animals; correlating type with function. Demonstration are given in castrating, slaughtering, and the preserving of meats. Three lectures and three hours of laboratory work weekly. Required in all curricula.

Throughout the year, credit 8 units.

Animal Husbandry 2 (AHus 2); *PRINCIPLES OF ANIMAL NUTRITION*.—The preparation of feeds, the computation of rations, and the methods of feeding for economic production. Special emphasis is given to the consideration of the nutritive value of Philippine feeds. Text used: HENRY and MORRISON—*Feeds and feeding* (abridged). Three lectures or recitations weekly. Required in Animal Husbandry and Veterinary Curricula.

Prerequisite: Animal Husbandry 1.

First semester, credit 3 units.

Animal Husbandry 3 (AHus 3); *ANIMAL BREEDING*.—The reproductive function, Mendelism, principles of constructive breeding and their application to the improvement of live stock. Three lectures weekly. Required in Animal Husbandry and Veterinary Curricula.

Prerequisite: Animal Husbandry 1.

Second semester, credit 3 units.

Animal Husbandry 4 (AHus 4); *PEDIGREES*.—The history of the principal breeds of farm animals, methods of registration, and pedigree work. Three recitations weekly. Elective.

Prerequisite: Animal Husbandry 1.

Second semester or summer, credit 3 units.

Animal Husbandry 99 (AHus 99); *SPECIAL PROBLEMS IN ANIMAL HUSBANDRY*.—Credit for report on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Animal Husbandry 100 (AHus 100); *UNDERGRADUATE THESIS IN ANIMAL HUSBANDRY*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units.

#### FOR UNDERGRADUATES AND GRADUATES

Animal Husbandry 101 (AHus 101); *CATTLE HUSBANDRY*.—The study of beef cattle and carabaos. The various types as they affect the Philippine market and needs. The nutritive value and prices of the different cuts of beef. Emphasis is placed on the management of cattle on the open range. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite or concurrency: Animal Husbandry 2.

Second semester, credit 5 units.

Animal Husbandry 102 (AHus 102); *POULTRY HUSBANDRY*.—The principal factors concerned in general poultry management; judging, feeding, incubation, brooding, housing ad the selection and laying out of a poultry farm; marketing eggs and poultry. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite or concurrency: Animal Husbandry 2.

First semester, credit 5 units.

Animal Husbandry 103 (AHus 103); *DAIRY HUSBANDRY*.—Breeding, feeding, and care of dairy cattle and carabaos. The physiological processes involved in milk secretion. Laboratory work includes the preparation of cheese and butter and the handling of market milk. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite or concurrency: Animal Husbandry 2.

Second semester, credit 5 units.

Animal Husbandry 104 (AHus 104); *SWINE HUSBANDRY*.—The study of the different breeds of swine, methods of feeding, breeding, housing, care and management under varying conditions. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite or concurrency: Animal Husbandry 2.

First semester, credit 5 units.

Animal Husbandry 105 (AHus 105); *HORSE HUSBANDRY*.—Breeding, feeding, and handling of both breeding and work horses, and general horsemanship. Study of the market types and the influence of introduced blood in the improvement of the native stock, stallion laws regulating breeding operations in foreign countries. Two lectures and three hours of laboratory work weekly. Elective.

Prerequisite: Animal Husbandry 1.

Second semester, credit 3 units.

Animal Husbandry 199 (AHus 199); *SEMINAR IN ANIMAL HUSBANDRY*.—Review and discussion of current literature on animal husbandry. Reports required. One meeting a week. Open only to senior, thesis, and graduate students.

Throughout the year, credit 2 units.

#### FOR GRADUATES

Animal Husbandry 300 (AHus 300); *MASTER'S THESIS IN ANIMAL HUSBANDRY*.—Credit for Master's theses is recorded under the number 300.

By arrangement, credit 10 units.

### DEPARTMENT OF ENGLISH

[Including Modern Languages]

Associate Professor YULE (Head); Assistant Professors LLENADO (Spanish and German) and O'LEARY; Instructor WILSON.

#### PREPARATORY

English 1 (Engl 1); *ENGLISH COMPOSITION A*.—The purpose of this course is to give the student ready and accurate use of written and spoken English. To this end special emphasis is laid upon theme work, talks, conversation, and reading. Particular attention is given to exercises to secure clear enunciation. Text: OSBORN and AGUIRRE—*High School English for the Philippines*. One theme and five recitations weekly. Required in the Preparatory Curriculum.

Throughout the year, credit 10 units

English 2 (Engl 2); *ENGLISH COMPOSITION B*.—A continuation of English 1, with themes and talks of a more formal nature. To prepare for the theme writing on technical agricultural subjects given in the College courses, attention is given to making of outlines and the use of references. Text: OSBORN and AGUIRRE—*High School English for the Philippines*. One theme and five recitations weekly and three special themes during the course. Required in the Preparatory Curriculum.

Prerequisite: English 1 or its equivalent.

Throughout the year, credit 10 units.

English 11 (Engl 11); *GENERAL LITERATURE*.—A brief study, by countries, of literature that has had influence in molding the ideals of man; that has contributed to human culture. Monthly papers on topics pertinent to the work required. Text: RICHARDSON and OWEN—*Literature of the World*. Five recitations weekly. Elective in the Supplementary Curriculum and in the senior year in both six-year and four-year courses.

Prerequisite: English 3 or 4.

Throughout the year, credit 10 units.

#### FOR UNDERGRADUATES

English 3 (Engl 3); *ENGLISH COMPOSITION*.—Oral discourse, practice in explanations, discussions, and addresses are emphasized. As students in this course are somewhat advanced in scientific and technical studies, the oral work is quite formal in character. Five recitations

weekly and six special themes during the course. Required in the Bachelor of Agriculture Curricula.

Prerequisite: English 2 or its equivalent.

Throughout the year, credit 10 units.

English 4 (Engl 4); *ENGLISH COMPOSITION*.—Exposition and argument emphasized with the aim to give training in such written and spoken discourse as will be of practical value to agriculturists in the Philippine Islands. Five recitations weekly and three special themes during the course are required. Required in the Bachelor of Science Curricula.

First semester, credit 5 units.

English 6 (Engl 6); *ADVANCED ENGLISH COMPOSITION*.—The oral work in this course is training (1) in giving talks and addresses on technical subjects connected with agriculture and (2) in presenting technical subjects in a popular manner, that is, in language that can be understood by those who have not studied the sciences related to agriculture. The written work includes making of abstracts of articles, theses, bulletins, and circulars; writing reviews of scientific publications; making digests on scientific or agricultural subjects. Training in presenting simple argument is given. Elective in the Supplementary Curriculum and in senior year in both six-year and four-year curricula.

Prerequisite: English 3 or 4.

First semester, credit 5 units.

German 1 (Germ 1); *FIRST COURSE IN GERMAN*.—Pronunciation, grammar, easy readings with practice in speaking and writing German. Texts: MEISSNER and JOYNES—*German Grammar* and MULLER and WENEKBACH—*Gluck Auf*. Three recitations weekly. Elective.

Throughout the year, credit 6 units.

German 2 (Germ 2); *INTERMEDIATE GERMAN*.—Preparatory for reading literary and scientific authors. Texts: MEISSNER and JOYNES—*German Grammar*; SUPER—*Andersen's Märchen* and GREENFIELD—*German Scientific Reader*. Three recitations weekly. Elective.

Prerequisite: German 1.

Throughout the year, credit 6 units.

Spanish 1 (Span 1); *ELEMENTARY SPANISH*.—Spanish grammar and composition (one hour a week), supplemented by reading (one hour a week) and conversation (one hour a week); Texts: F. T. D.—*Gramática Castellana* (tercer grado) *Según los Principios de la Academia*; LOISEAUX—*Elementary Spanish Reader*; and MORLEY—*Spanish Humor in Story and Essay*; supplemented with VALDEZ—*Capitan Ribot*; ALARCON—*El Capitan Veneno*; and selected newspapers and magazines. Three recitations weekly. Elective.

Throughout the year, credit 6 units.

Spanish 2 (Span 2); *INTERMEDIATE SPANISH*.—Introduction to Spanish literature with review exercises in grammar and translation. Texts: HALL—*All Spanish Method*; RIZAL—*Noli Me Tangere* and *El Filibusterismo*; selections from CERVANTES—*Novelas Ejemplares*; BENAVENTE—*El Palacio Triste*; and CALDERON—*La Vida es Sueño*, supplemented with GALDOS—*Doña Perfecto*; ALARCON—*El Capitan Veneno*; MORALES—

*El Si de las Niñas*; VALERA—*Pepita Jimenez*; ECHEGARAY—*El Gran Gato*; and ZORRILA—*Don Juan Tenorio*. Three recitations weekly. Elective.

Prerequisite: Spanish 1.

Throughout the year, credit 6 units.

### DEPARTMENT ENTOMOLOGY

[Including Zoölogy]

Associate Professor UICHANCO (Acting Head); Assistant Professor RUSTIA; Instructor VILLADOLID (on leave); Assistants, CENDAÑA, GONZALEZ, and MANUEL

#### FOR UNDERGRADUATES

Zoölogy 1a (Zoöl 1a); *INTRODUCTORY ECONOMIC ZOOLOGY*.—An introduction to animal biology intended to give the students a general view of the fundamental principles of zoölogy and to prepare them for more advanced work in related sciences. It is based on a study of the various biological principles, as related to zoölogy, life history, morphological characters and relationships of representatives of the more important animal phyla, and on collection and classification. Text: SHULL—*Principles of Animal Biology*, second edition. Three lectures and six hours of laboratory work weekly. Required in the General and Animal Husbandry Curricula.

First semester, credit 5 units.

Zoölogy 1b (Zoöl 1b); *VERTEBRATE ZOOLOGY*.—A continuation of Zoölogy 1a. A general survey, consisting of field trips, ecological observations, collection and classification of representatives of the different vertebrate classes, special attention being given to species of economic importance; a consideration of the Prevertebrates; taxonomic position of the principal domestic animals; comparative anatomy of selected vertebrate types.

Aim: the preparation of students for work in animal husbandry and other agricultural subjects which require vertebrate zoölogy as a foundation.

Texts: HEGNER—*College Zoölogy*; KINGSLEY—*Outline of Comparative Anatomy of Vertebrates*. Required in the General and Animal Husbandry Curricula.

Prerequisite: Zoölogy 1a.

Second semester, credit 5 units.

Entomology 1 (Ent 1); *ECONOMIC ENTOMOLOGY*.—An elementary study in general entomology designed to bring out the economic side of the subject, considerable attention being paid to the recognition of the more important insect pests of the Philippines and to methods of controlling them. Text: FOLSOM—*Entomology with Reference to Its Ecological Aspects*, third edition. Three lectures and six hours of laboratory work weekly. Required in the General Curricula.

Prerequisite: Zoölogy 1a.

First semester, credit 5 units.

Entomology 4 (Ent 4); *ENTOMOLOGY OF THE SUGAR CANE*.—The course is similar to Entomology 1 but more condensed and has special reference to taxonomy, biology, and methods of control of insects affecting

the sugar cane. The course requires one lecture and six hours of laboratory work weekly. Required in the Sugar Technology Curriculum.

Second semester, credit 3 units.

Entomology 99 (Ent 99); *SPECIAL PROBLEMS IN ENTOMOLOGY*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for the regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Entomology 100 (Ent 100); *UNDERGRADUATE THESIS IN ENTOMOLOGY*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units.

#### FOR UNDERGRADUATES AND GRADUATES

Entomology 199 (Ent 199); *SEMINAR IN ECONOMIC ENTOMOLOGY*.—The seminar consists of review and discussion of current literature in economic entomology. Reports are required. One meeting each week. Open only to senior, thesis, and graduate students.

Throughout the year, credit 2 units.

Entomology 300 (Ent 300); *MASTER'S THESIS IN ENTOMOLOGY*.—Credit for Master's theses is recorded under the number 300.

By arrangement, credit 10 units.

#### DEPARTMENT OF PLANT PATHOLOGY

Assistant Professor OCFEMIA (Acting Head); Instructor ROLDAN; Assistants AGATI and PALO

#### FOR UNDERGRADUATES

Plant Pathology 1 (PPath 1); *GENERAL PLANT PATHOLOGY*.—The course includes a study of some of the more important plant diseases found in the Philippines. Emphasis is placed on symptoms, nature, and causes of plant diseases and methods of control. Three lectures and six hours of laboratory work weekly. Required in the General Curriculum.

Prerequisites; Plant Physiology 2 and Agricultural Chemistry 1.

Second semester, credit 5 units.

Plant Pathology 2 (PPath 2); *METHODS IN PLANT PATHOLOGY*.—The course is a laboratory study of common Philippine bacterial and fungus diseases of plants. The preparation of media used for the cultivation of bacteria and fungi, isolation, culture of fungi and bacteria, and technique in inoculation work are studied. The course requires two lectures and nine hours of laboratory work weekly. Elective.

Prerequisite: Plant Pathology 1.

First semester, credit 5 units.

Plant Pathology 4 (PPath 4); *DISEASES OF SUGAR CANE*.—A study of the symptoms, nature and cause, and control of important diseases of sugar cane in the Philippines. One lecture and six hours of laboratory and field work weekly. Required in the Sugar Technology Curriculum.

First semester, credit 3 units.

Plant Pathology 99 (PPath 99); *SPECIAL PROBLEMS IN PLANT PATHOLOGY*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Plant Pathology 100 (PPath 100); *UNDERGRADUATE THESIS IN PLANT PATHOLOGY*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units.

#### FOR UNDERGRADUATES AND GRADUATES

Plant Pathology 199 (PPath 199); *SEMINAR IN PLANT PATHOLOGY*.—The seminar consists of review and discussion of current literature in plant pathology. Reports are required. One meeting each week. Open only to senior, thesis, and graduate students.

Throughout the year, credit 2 units.

#### FOR GRADUATES

Plant Pathology 300 (PPath 300); *MASTER'S THESIS IN PLANT PATHOLOGY*.—Credit for Master's theses is recorded under the number 300.

By arrangement, credit 10 units.

### DEPARTMENT OF PLANT PHYSIOLOGY

Associate Professor ESPINO (Acting Head); Assistant Professor QUISUMBING; Instructor PERALTA; Assistants ESTIOKO, JULIANO, and MANZA

#### PREPARATORY

Plant Physiology 1 (PPhsl 1); *ELEMENTARY BOTANY*.—Designed as a foundation course. The first semester is devoted to the study of the typical cell and the structure of economic plants with a view to the understanding of their vital processes. An outline of the evolution of plants is presented in the second semester. Two lectures and six hours of laboratory work weekly. Required in the Preparatory Curriculum.

Throughout the year, credit 8 units.

#### FOR UNDERGRADUATES

Plant Physiology 2 (PPhsl 2); *PLANT PHYSIOLOGY*.—The function of organs, the physiology of nutrition, and the factors at work in plant growth and movement are dealt with in detail. The course requires two lectures and six hours of laboratory work weekly. Required in all curricula except the combined six-year Animal Husbandry and Veterinary Curriculum.

Throughout the year, credit 8 units.

Plant Physiology 3 (PPhsl 3); *VETERINARY BOTANY*.—This course is essentially a study of plants of economic importance from the point of view of the veterinarian. Forage, medicinal, and poisonous plants receive particular attention. The course requires two lectures weekly. Required in the College of Veterinary Science.

Second semester, credit 2 units.

Plant Physiology 4 (PPhsl 4); *ECOLOGY OF PASTURES*.—This course is especially designed for students majoring in Animal Husbandry. It includes the use of exact methods for determining the composition of the flora of pastures. A study of migration, invasion, competition, and dominance of the more important pasture plants, and improvement of pastures. The latter part of the course will be devoted to a study of the poisonous plants of the pastures; and the qualitative tests of the toxic principles of the poisonous species. The course requires one lecture and six hours of laboratory or field work a week. Required in the combined six-year Animal Husbandry and Veterinary Curriculum. Offered as an elective to students enrolled in the General Curriculum.

Second semester, credit 3 units.

Plant Physiology 99 (PPhsl 99); *SPECIAL PROBLEMS IN PLANT PHYSIOLOGY*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Plant Physiology 100 (PPhsl 100); *UNDERGRADUATE THESIS IN PLANT PHYSIOLOGY*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units.

#### FOR UNDERGRADUATES AND GRADUATES

Plant Physiology 101 (PPhsl 101); *PLANT NUTRITION*.—The Physiology of nutrition and its practical application. Three lectures and six hours of laboratory work weekly. Elective.

Throughout the year, credit 10 units.

Plant Physiology 104 (PPhsl 104); *FARM WEEDS*.—Determination of the common and injurious weeds of the farms; a study of their habits of growth and methods of reproduction; methods of eradication and control; their origin and distribution. The course includes also a study of the useful weeds. Critical study of the structure and ecology of weed seeds; principles of seed testing; and detection of weed seeds in commercial seeds. This course requires three lectures and six hours of field or laboratory work a week. Elective.

First semester, credit 5 units.

Plant Physiology 199 (PPhsl 199); *SEMINAR IN PLANT PHYSIOLOGY*.—The seminar consists of review and discussion on current literature in plant physiology. Reports are required. One meeting each week. Open only to senior, thesis, and graduate students.

Throughout the year, credit 2 units.

#### FOR GRADUATES

Plant Physiology 300 (PPhsl 300); *MASTER'S THESIS IN PLANT PHYSIOLOGY*.—Credit for Master's theses is recorded under the number 300.

By arrangement, credit 10 units.

High-school graduates are required to take a coaching course in plant anatomy given in summer; this course is supplementary to high-school

biology, and is planned to cover that portion of Plant Physiology 1 which is not included in the high-school curriculum. This supplementary course is required, but carries no credit.

#### DEPARTMENT OF RURAL ECONOMICS

[Including History]

Assistant Professor LOPEZ (Acting Head); Instructors BUENAVENTURA (History), MABBUN and VELMONTE; and Assistant SACAY

#### PREPARATORY

Rural Economics 1 (REcon 1); *ECONOMIC CONDITIONS OF THE PHILIPPINES*.—Land, labor, and capital conditions of the Philippine Islands and the production of Philippine agricultural raw materials, their value, international movement, and industrial elaboration. Texts: MILLER, HUGO.—*Economic Conditions of the Philippines*; and Bureau of Commerce and Industry—*Statistical Bulletin No. 6*. One lecture, one exercise, and one quiz weekly. Quiz sections are provided for every twelve students and are conducted by members of the staff. Required in the Preparatory Curriculum.

Throughout the year, credit 4 units.

#### FOR UNDERGRADUATES

Rural Economics 2 (REcon 2); *PRINCIPLES OF RURAL ECONOMY*.—General economics with the paramount emphasis placed on agricultural production and marketing and with particular and constant application to problems of Philippine rural economy. Three lectures, one exercise weekly, and a minimum of collateral reading. Text: CARVER—*Principles of Economics*. Required in all curricula.

Throughout the year, credit 6 units.

Rural Economics 3 (REcon 3); *FARM BOOKKEEPING AND ACCOUNTING*.—Systematic recording by approved accounting methods of transactions arising in the operation of a farming business, to ascertain the exact gains and losses at the end of a certain period of operation; the recording of facts necessary for information and guidance in the economy and success of future operations. The course includes the use of a complete set of books: journal, ledger, trial balance, balance sheet, statement of profit and loss, purchase and sales books, etc. Exercises and lectures, two hours weekly. Required in all curricula.

Throughout the year, credit 4 units.

Rural Economics 4 (REcon 4); *RURAL COÖPERATION AND CREDIT*.—History, development, and mechanism of rural coöperation and credit in Europe, the United States, and the Philippine Islands. Emphasis is placed on the problem of devising an effective rural banking system in the Philippine Islands. Lectures and recitations requiring five hours weekly. In addition, considerable collateral reading is required. Texts: POWELL—*Coöperation in Agriculture*; and HERRICK—*Rural credits*. Elective.

Second semester, credit 5 units.

Rural Economics 5 (REcon 5); *COMMERCE OF SUGAR*.—The course is designed principally for students in Sugar Technology to acquaint them with the salient factors in the cost of production, marketing, and con-

sumption of the world's supply of sugar. Required of students in the Sugar Technology Curriculum.

First semester, credit 3 units.

Rural Economics 99 (REcon 99); *SPECIAL PROBLEMS IN RURAL ECONOMICS*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem course.

By arrangement, credit 1 to 6 units.

Rural Economics 100 (REcon 100); *UNDERGRADUATE THESIS IN RURAL ECONOMICS*.—Credit for undergraduate theses is recorded under the number 100. See page 361 for regulations covering undergraduate theses.

By arrangement, credit 10 units

#### FOR SUPPLEMENTARY CURRICULUM STUDENTS

History 1a (Hist 1a); *ANCIENT AND MEDIEVAL*.—General history from prehistoric times to the discovery of America. Text: ROBINSON and BREASTED—*History of Europe, Ancient, and Medieval*. Five recitations weekly. Elective in the Supplementary Curriculum.

First semester, credit 5 units.

History 1b (Hist 1b); *MODERN EUROPEAN HISTORY*.—History of modern Europe from 1492 to the present day. Text: ROBINSON and BEARD—*History of Europe in Our Own Times*. Five recitations weekly. Elective in the Supplementary Curriculum.

Prerequisite: History 1a.

Second semester, credit 5 units.

History 2 (Hist 2); *UNITED STATES HISTORY*.—History of the United States from the discovery of North America to the present time. Text: MACE—*School History of the United States*. Five recitations weekly. Elective in the Supplementary Curriculum.

First semester, credit 5 units.

History 3 (Hist 3); *GOVERNMENT OF THE UNITED STATES AND THE PHILIPPINE ISLANDS*.—A detailed study of the Federal Government of the United States and the Insular Government of the Philippine Islands. Texts: ASHLEY—*New Civics* and MALCOLM and KALAW—*Philippine Government*. Five recitations weekly. Elective in the Supplementary Curriculum.

Second semester, credit 5 units.

History 4 (Hist 4); *PHILIPPINE HISTORY*.—History of the Philippine Islands from pre-Spanish times to the present. Text: FERNANDEZ—*Brief History of the Philippines*. Five recitations weekly. Elective in the Supplementary Curriculum.

Second semester, credit 5 units.

#### DEPARTMENT OF RURAL ENGINEERING

[Including Mathematics and Physics]

Professor JOHNSON (Head); Assistant Professor TEODORO; Assistants, CARREON, GORDON,<sup>1</sup> ROCAFORT and REYES

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<sup>1</sup> On leave in the United States as pensionado.

**PREPARATORY**

Physics 1 (Phys 1); *ELEMENTARY PHYSICS*.—Mechanics, heat, electricity, and magnetism as regards principles, treated in an elementary manner. Text: MILLIKAN and GALE—*Practical Physics and Laboratory Manual*. Two lectures and three hours of laboratory work weekly Required in the Preparatory Curriculum, and, without credit, of students in the Forest School who are deficient in Physics.

Prerequisite or concurrency: Mathematics 2.

Throughout the year, credit 6 units.

**FOR UNDERGRADUATES**

Physics 2 (Phys 2); *GENERAL PHYSICS*.—The fundamentals of mechanics, heat, light, and electricity in application to the physical problems of the farm. Text: SMITH—*Elements of Applied Physics*. Four lectures and three hours of laboratory work weekly. Required in all curricula, except Sugar Technology, and in the Forest School.

Prerequisites: Physics 1 or High-School Physics and Mathematics 5.

Second semester, credit 5 units.

Physics 3a (Phys 3a); *GENERAL PHYSICS*.—A course in which topics of special value to sugar technology students and to those majoring in rural engineering, are emphasized. The work is carried on by means of lectures, quizzes, laboratory work, and problems in physics. Required in Sugar Technology Curriculum and of students majoring in rural engineering. Three lectures and three hours laboratory work weekly.

Prerequisites: Physics 1 or High-School Physics and Mathematics 5.

First semester, credit 4 units.

Physics 3b (Phys 3b); *GENERAL PHYSICS*.—This is a continuation of Physics 3a. Required in Sugar Technology Curriculum and of students majoring in rural engineering. Three lectures and three hours laboratory work weekly.

Prerequisite: Physics 3a.

Second semester, credit 4 units.

Rural Engineering 1a (REng 1a); *FARM MECHANICS*.—Mechanical principles; the transmission of power, gas, oil, and steam engines; valve grinding; valve and ignition timing; geared farm implements; pumps; and elements of concrete work. Three lectures and three hours of laboratory work weekly. Required in all curricula.

Prerequisite: Physics 2.

First semester, credit 4 units.

Rural Engineering 1b (REng 1b); *FARM MACHINERY AND MOTORS*.—The construction, operation, adjustment, and care of gasoline and oil engines and tractors; the operation and testing of geared machinery; and the measurement and transmission of power. Two lectures and three hours of laboratory and field work weekly. Required in all curricula.

Prerequisite: Rural Engineering 1a.

Second semester, credit 3 units.

Rural Engineering 1c (REng 1c); *FARM SURVEYING*.—The measurement and calculation of land areas; location of building sites; leveling;

contouring; grading; and mapping. Eighteen forenoons for brief lectures and field work. Required in all curricula.

Prerequisite: Mathematics 5.

Either semester or summer, credit 1 unit.

Rural Engineering 2a (REng 2a); *IRRIGATION*.—Water supply, rights, duty, conveyance, pumping methods, over-irrigation and irrigation structures. Text: WILSON—*Irrigation Engineering*. Three lectures and six hours of laboratory work weekly. Elective.

Prerequisite: Physics 2.

First semester, credit 5 units.

Rural Engineering 2b (REng 2b); *DRAINAGE*.—The fundamentals and practice of land drainage and flood control. Text: ELLIOT—*Engineering for Land Drainage*. Three lectures and six hours of laboratory work, weekly. Elective.

Prerequisite: Physics 2.

Second semester, credit 5 units.

Rural Engineering 99 (REng 99); *SPECIAL PROBLEMS IN RURAL ENGINEERING*.—Credit for reports on assigned special problems is recorded under the number 99. See page 361 for regulations covering special problem courses.

By arrangement, credit 1 to 6 units.

Rural Engineering 100 (REng 100); *UNDERGRADUATE THESIS IN RURAL ENGINEERING*.—Credit for undergraduate theses is recorded under the number 100. See page — for regulations covering undergraduate theses.

By arrangement, credit 10 units.

Farm Experience B (FExper B); *BLACKSMITHING*.—A brief course in the handling of the forge and elements of ironworking. Nine hours of shop work weekly for eight weeks. No formal grade or credit is given but satisfactory completion of the course is required in the General and Animal Husbandry Curricula.

Summer, informal credit.

Farm Experience C (FExper C); *CARPENTRY*.—A brief course of exercises in the handling of tools and the elements of woodworking. Nine hours of shop work weekly for eight weeks. No formal grade or credit is given, but satisfactory completion of the course is required in the General and Animal Husbandry Curricula.

Summer, informal credit.

## MATHEMATICS

Professor JOHNSON (Head); Assistant Professor ROA; Instructors LAVA and PONCO; Assistants ALAS and BATACLAN

### PREPARATORY

Mathematics 1 (Math 1); *FIRST COURSE IN ALGEBRA*.—The elements of Algebra. Text: HAWKES-LUBY-TOUTON—*Complete School Algebra*. Five recitations weekly. Required in the Preparatory Curriculum.

Throughout the year, credit 10 units.

Mathematics 2 (Math 2); *PLANE GEOMETRY*.—A thorough study of plane geometry. Text: HAWKES-LUBY-TOUTON—*Plane Geometry*. Five recitations weekly. Required in the Preparatory Curriculum.

Prerequisite: Mathematics 1.

Throughout the year, credit 10 units.

#### FOR UNDERGRADUATES

Mathematics 3 (Math 3); *SECOND COURSE IN ALGEBRA*.—A brief review of Mathematics 1; and algebra through the binomial theorem. Text: HAWKES-LUBY-TOUTON—*Complete School Algebra*. Five recitations weekly. Required in the Bachelor of Agriculture Curricula.

Prerequisite: Mathematics 2.

First semester, credit 5 units.

Mathematics 4 (Math 4); *HIGH-SCHOOL ALGEBRA REVIEW*.—A review of the field of Mathematics 3. Two recitations weekly. Required without credit of high-school graduates deficient in higher mathematics.

Second semester, credit informal.

Mathematics 5 (Math 5); *PLANE TRIGONOMETRY*.—The elements of plane trigonometry. Text: CRENSHAW and DERR.—*Plane Trigonometry*. Three recitations weekly. Required in all curricula.

Prerequisite: Mathematics 3 or High-School Algebra, and, if necessary Mathematics 4.

Second semester, credit 3 units.

Mathematics 6 (Math 6); *SOLID GEOMETRY*.—Text used: HAWKES-LUBY-TOUTON—*Solid Geometry*. Fifty recitations. Required in the Sugar Technology Curriculum.

Prerequisite: Mathematics 3 or its equivalent.

Summer, credit 3 units.

Mathematics 7 (Math 7); *COLLEGE ALGEBRA*.—A review of High-School Algebra; progressions, permutations, and combinations; complex numbers; determinants; partial fractions; variation; and infinite series. Text: FORD—*Brief Course in College Algebra*. Fifty recitations. Required in the Sugar Technology Curriculum.

Prerequisite: Mathematics 5.

Summer, credit 3 units.

Mathematics 8 (Math 8); *ANALYTIC GEOMETRY*.—Analysis of the line, parabola, hyperbola, ellipse, tangents, diameters, and the general equation of the second degree. Text: ROBERTS-COLPITTS—*Analytic Geometry*. Three recitations weekly. Required in the Sugar Technology Curriculum.

Prerequisite: Mathematics 7.

First semester, credit 3 units.

#### FOR UNDERGRADUATES AND GRADUATES

Mathematics 101 (Math 101); *DIFFERENTIAL CALCULUS*.—Derivations of formulas; problems in maxima and minima; simple application of the calculus to problems in geometry, algebra, and mechanics. Text:

**PHILIPPS—Differential Calculus.** Three recitations weekly. Required in the Sugar Technology Curriculum.

Prerequisite: Mathematics 8.

Second semester, credit 3 units.

Mathematics 102 (Math 102); *INTEGRAL CALCULUS*.—Integration; areas, volumes; and applications to problems in mechanics, emphasizing applications to thermo-dynamics. Text: **PHILIPPS—Integral Calculus.** Three recitations weekly. Required in the Sugar Technology Curriculum.

Prerequisite: Mathematics 101.

Second semester, credit 3 units.

#### MILITARY SCIENCE AND TACTICS

Commandant, **JOHN MCBRIDE**, Captain Infantry, U. S. A.; Senior Instructor **AMADO MARTELINO**, Second Lieutenant P. S., (F. A.), 24th F. A. (P. S.); Assistant Instructors, Sergeant **VICTOR BELARMINO**, 14th Engrs. (P. S.), Corporal **ENRIQUE MANGIBIN**, 91st C. A. C. (P. S.)

Military Science 1 (Milit Sc 1); *FIRST YEAR BASIC*.—Infantry Drill, Rifle markmanship, scouting and patrolling, military courtesy. Three hours weekly. Required of all university students, unless exempted, during their first year in the collegiate courses.

Throughout the year, credit 3 units.

Military Science 2 (Milit Sc 2); *SECOND YEAR BASIC*.—Map reading and sketching, infantry weapons, scouting and patrolling, musketry, command and leadership. Three hours weekly. For noncommissioned officers one extra hour weekly. Required of all University students, unless exempted, during their second year in the collegiate courses.

Prerequisite: Military Science 1.

Throughout the year, credit 3 units.

Military Science 3 (Milit Sc 3); *FIRST YEAR ADVANCED*.—An advanced course covering field engineering, chemical warfare, accompanying weapons, musketry and scouting, military law and rules of land warfare, map reading, command and leadership. Five hours weekly. Elective.

Prerequisite: Military Science 2.

Throughout the year, credit 7 units.

Military Science 4 (Milit Sc 4); *SECOND YEAR ADVANCED*.—An advanced course covering chemical warfare, tactics, military history, administration, tent pitching and packing. Command and leadership. Five hours weekly. Elective.

Prerequisite: Military Science 3.

Throughout the year, credit 7 units.

#### PHYSICAL TRAINING

[Including Athletics]

Director **YLANAN**; Instructor **SANTOS**; Assistants **CALVO** and **LEONCIO**

#### FOR UNDERGRADUATES

Physical Training 1 to 6 (PhysT 1 to 6); *PHYSICAL TRAINING A*.—One hour weekly devoted primarily to group games, calisthenics, and cor-

rective gymnastics. Required of all students each year of residence unless exempted.

Throughout the year, credit 2 units.

Physical Training 7 (PhysT 7); *BASEBALL*.—Students selected for membership in intercollegiate baseball teams receive credit under this title in lieu of Physical Training 1, 2, 3, or 4 from which they may be exempted.

Throughout the year, credit 4 units.

Physical Training 8 (PhysT 8); *BASKETBALL*.—Students selected for membership in intercollegiate basketball teams receive credit under this title in lieu of Physical Training 1, 2, 3, or 4 from which they may be exempted.

Throughout the year, credit 4 units.

Physical Training 9 (PhysT 9); *TRACK AND FIELD*.—Students selected for membership in intercollegiate track and field teams receive credit under this title in lieu of Physical Training 1, 2, 3, or 4 from which they may be exempted.

Throughout the year, credit 2 units.

Physical Training 10 (PhysT 10); *FOOTBALL*.—Students selected for membership in intercollegiate football teams receive credit under this title in lieu of Physical Training 1, 2, 3, 4, 5, and 6 from which they may be exempted.

Throughout the year, credit 2 units.

#### VETERINARY SCIENCE

[Given in the College of Veterinary Science]

Veterinary Anatomy 6 (VAnat 6); *ELEMENTARY ANATOMY*.—The course is designed to meet the needs of agricultural students specializing in animal husbandry. It includes in a general way the anatomy of domestic farm animals, emphasizing conformation, the various levers of locomotion, and the digestive and respiratory systems. Laboratory work consists of studying and drawing the most important bones and such other parts of the body as the instructor may indicate. Demonstrations of previously dissected parts of the body are given from time to time. The course requires three lectures and nine hours of laboratory work weekly. Required in the Animal Husbandry Curricula.

First semester, credit 5 units.

Veterinary Medicine 5 (VMed 5); *COMMON DISEASES OF ANIMALS*.—The course is designed for students enrolled in the Animal Husbandry Curricula of the College of Agriculture and embraces a consideration of the common diseases of horses, cattle, poultry, swine, sheep, and goats. The diagnosis and treatment of common ailments, sanitary measures, and minor surgical operations are also given attention. The course requires three lectures weekly. Required in the Animal Husbandry Curricula.

First semester, credit 3 units.

## SCHEME OF CURRICULA

### THE PREPARATORY CURRICULUM

The Preparatory Curriculum consists of a two-year and one summer schedule required of students who have completed a standard general, farm, or trade course in an elementary school having not less than a seven-year schedule. The Preparatory Curriculum is equivalent to two years of the secondary school, modified so as to present the essential agricultural preparation. Completion of the curriculum admits to candidacy for the degree of Bachelor of Agriculture in the Bachelor of Agriculture General or Bachelor of Agriculture Animal Husbandry Curricula. The schedule consists of 137 week-hours carrying 72 semester units and is arranged as follows:

#### FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Agron 1.....	6	2	Agron 1.....	6	2
Engl 1.....	5	5	Engl 1.....	5	5
Math 1.....	5	5	Math 1.....	5	5
PPhsl 1.....	8	4	PPhsl 1.....	8	4
REcon 1.....	2	2	REcon 1.....	2	2
PhysT 1.....	1	—	PhysT 1.....	1	—
Totals.....	27	18	Totals.....	27	18

#### FIRST SUMMER

	[Eight Weeks]	Hours
FExper A.....		15
FExper B.....		9
FExper C.....		9
Total.....		33

#### SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Engl 2.....	5	5	Engl 2.....	5	5
Math 2.....	5	5	Math 2.....	5	5
Phys 1.....	5	3	Phys 1.....	5	3
Zoöl 1.....	9	5	Zoöl 1.....	9	5
PhysT 2.....	1	—	PhysT 2.....	1	—
Totals.....	25	18	Totals.....	25	18

# THE BACHELOR OF AGRICULTURAL GENERAL CURRICULUM

The Bachelor of Agriculture General Curriculum leads to the degree of *Bachelor of Agriculture* and consists of a four-year schedule of collegiate work. The curriculum is open to students who have completed the preparatory Curriculum. The schedule consists of 201+ week-hours carrying 160 semesters units and is arranged as follows:

## FIRST YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
AChem 1.....	9	5	AChem 1.....	9	5
Agron 2.....	3	3	Agron 5.....	5	5
Math 3.....	5	5	Math 5.....	3	3
PPhsl 2.....	8	4	PPhsl 2.....	8	4
REcon.....	3	3	REcon 2.....	3	3
Milit Sc 1.....	3	---	Milit Sc 1.....	3	---
PhysT 3.....	1	---	PhysT 3.....	1	---
<b>Totals.....</b>	<b>32</b>	<b>20</b>	<b>Totals.....</b>	<b>32</b>	<b>20</b>

## SECOND YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
AChem 2.....	9	5	AChem 2.....	9	5
Agron 4a.....	9	5	Agron 4b.....	9	5
Agron 3.....	5	5	Engl 3b.....	5	5
Engl 3a.....	5	5	Phys 2.....	7	5
REcon 3.....	2	2	REcon 3.....	2	2
Milit Sc 2.....	3	---	Milit Sc 2.....	3	---
PhysT 4.....	1	---	PhysT 4.....	1	---
<b>Totals.....</b>	<b>34</b>	<b>22</b>	<b>Totals.....</b>	<b>36</b>	<b>22</b>

## THIRD YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
Agron Elec 1.....	9	5	Agron Elec 1.....	9	5
Ent 1.....	9	5	Major.....	---	5
Major.....	---	5	PPath 1.....	9	5
REng 1a.....	6	4	REng 1b.....	5	3
PhysT 5.....	1	---	REng 1c.....	4	1
<b>Totals.....</b>	<b>25+</b>	<b>19</b>	<b>PhysT 5.....</b>	<b>1</b>	<b>---</b>
			<b>Totals.....</b>	<b>28+</b>	<b>19</b>

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
AHus 1.....	6	4	AHus 1.....	6	4
Elective 1.....	---	5	Elective.....	---	5
Major.....	---	10	Major.....	---	10
PhysT 6.....	1	---	PhysT 6.....	1	---
<b>Totals.....</b>	<b>7+</b>	<b>19</b>	<b>Totals.....</b>	<b>7+</b>	<b>19</b>

<sup>1</sup> Election limited to 5 units from Agronomy 12, 13, 15, 16, or 22.

# THE BACHELOR OF AGRICULTURE ANIMAL HUSBANDRY CURRICULUM

The Bachelor of Agriculture Animal Husbandry Curriculum leads to the degree of *Bachelor of Agriculture* and consists of a four-year schedule of collegiate work with the emphasis upon animal husbandry and related subjects. The curriculum is open to students who have completed the Preparatory Curriculum. The schedule consists of 187 week-hours carrying 160 semester units and is arranged as follows:

## FIRST YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
AChem 1	9	5	AChem 1	9	5
Agron 2	3	3	Agron 5	5	5
Math 3	5	5	Math 5	3	3
PPhsL 2	8	4	PPhsL 2	8	4
REcon 2	3	3	REcon 2	3	3
Milit Sc 1	3	-----	Milit Sc	3	-----
PhysT 3	1	-----	PhysT 3	1	-----
Totals	32	20	Totals	32	20

## SECOND YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
AChem 2	9	5	AChem 2	9	5
Agron 4a	9	5	Agron 4b	9	5
AHus 1	6	4	AHus 1	6	4
Engl 3a	5	5	Engl 3b	5	5
REcon 3	2	2	REcon 3	2	2
Milit Sc 2	3	-----	Milit Sc 2	3	-----
PhysT 4	1	-----	PhysT 4	1	-----
Totals	35	21	Totals	35	21

## THIRD YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
Agron 7	9	5	Phys 2	7	5
AHus 2	3	3	AHus 3	3	3
Major	-----	5	Major	-----	5
VAnat 6 <sup>1</sup>	9	5	VMed 5 <sup>1</sup>	3	3
Elective	-----	2	Elective	-----	4
PhysT 5	1	-----	PhysT 4	1	-----
Totals	22+	20	Totals	14+	20

## FOURTH YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
Elective	-----	5	Elective	-----	5
Major	-----	10	Major	-----	10
REng 1a	6	4	REng 1b	5	3
PhysT 6	1	-----	REng 1c	4	1
Totals	7+	19	PhysT 6	1	-----
			Totals	10+	19

<sup>1</sup>Courses given in the College of Veterinary Science.

## THE BACHELOR OF SCIENCE GENERAL CURRICULUM

The Bachelor of Science General Curriculum leads to the degree of *Bachelor of Science in Agriculture* and consists of a four-year schedule of collegiate work and one summer of farm experience. The curriculum is open to students who have completed the following subjects in a recognized secondary school:

Subject	H. S. Units	Subject	H. S. Units
Algebra	1½	History	1
Biology Botany or Zoölogy	1	Physics	1
Electives	5½	Plane Geometry	1
English	3	Total	14

Graduates of secondary agricultural schools of the Philippine Islands of the "Muñoz" type are admitted to the Bachelor of Science General Curriculum under special conditions as shown on page 355 of this bulletin. The schedule consists of 254+ week-hours carrying 164 semester units arranged as follows:

### FIRST YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
AChem 1	9	5	AChem 1	9	5
Agron 1	6	2	Agron 1	6	2
Agron 2	3	3	Agron 5	5	5
Engl 4	5	5	Math 5	3	3
PPhsl 2	8	4	PPhsl 2	8	4
REcon 2	3	3	REcon 2	3	3
Milit Sc 1	3	—	Milit Sc 1	3	—
PhysT 3	1	—	PhysT 3	1	—
Totals.	38	22	Totals.	38	22

### FIRST SUMMER

[Eight Weeks]		Hours
FExper A	—	15
FExper B	—	9
FExper C	—	9
Total.		33

### SECOND YEAR

<i>First Semester</i>			<i>Second Semester</i>		
	Hours	Units		Hours	Units
AChem 2	9	5	AChem 2	9	5
Agron 4a	9	5	Agron 4b	9	5
Agron 3	5	5	Phys 2	7	5
REcon 3	2	2	REcon 3	2	2
Zoöl 1	9	5	Zoöl 1	9	5
Milit Sc 2	3	—	Milit Sc 2	3	—
PhysT 4	1	—	PhysT 4	1	—
Totals.	38	22	Totals.	40	22

## THE COLLEGE OF AGRICULTURE

## THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
Agron Elec 1.....	9	5	Agron Elec 1.....	9	5
Ent 1.....	9	5	Major.....		5
Major.....		5	PPath 1.....	9	5
REng 1a.....	6	4	REng 1b.....	5	3
PhysT 5.....	1	---	REng 1c.....	4	1
Totals.....	25+	19	PhysT 5.....	1	---
			Totals.....	28+	19

## FOURTH YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
AHus 1.....	6	4	AHus 1.....	6	4
Elective.....		5	Elective.....		5
Major.....		10	Major.....		10
PhysT 6.....	1	---	PhysT 6.....	1	---
Totals.....	7+	19	Totals.....	7+	19

<sup>1</sup> Election limited to 5 units from Agronomy 12, 13, 15, 16, or 22.

### THE BACHELOR OF SCIENCE ANIMAL HUSBANDRY CURRICULUM

The Bachelor of Science Animal Husbandry Curriculum leads to the degree of *Bachelor of Science in Agriculture* and consists of a four-year schedule of collegiate work and one summer of farm experience. The curriculum is open to graduates of recognized secondary schools on the same conditions as the Bachelor of Science General Curriculum for which see page 354 of this bulletin. The schedule consists of 240+ week-hours carrying 164 semester units and is arranged as follows:

## FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
AChem 1.....	9	5	AChem 1.....	9	5
Agron 1.....	6	2	Agron 1.....	6	2
Agron 2.....	3	3	Agron 5.....	5	5
Engl 4.....	5	5	Math 5.....	3	3
PPhs 2.....	8	4	PPhs 2.....	8	4
REcon 2.....	3	3	REcon 2.....	3	3
Milit Sc 1.....	3	---	Milit Sc 1.....	3	---
PhysT 3.....	1	---	PhysT 3.....	1	---
Totals.....	38	22	Totals.....	38	22

## FIRST SUMMER

[Eight Weeks]

	Hours
FExper A.....	15
FExper B.....	9
FExper C.....	9
Total.....	38

## SECOND YEAR

## First Semester

	Hours	Units
AChem 2.....	9	5
Agron 4a.....	9	5
AHus 1.....	6	4
REcon 3.....	2	2
Zoöl 1.....	9	5
Milit Sc 2.....	3	-----
PhysT 4.....	1	-----

## Second Semester

	Hours	Units
AChem 2.....	9	5
Agron 4b.....	9	5
AHus 1.....	6	4
REcon 3.....	2	2
Zool 1.....	9	5
Milit Sc 2.....	3	-----
PhysT 4.....	1	-----

Totals.....

39      21

Totals.....

39      21

## THIRD YEAR

## First Semester

	Hours	Units
Agron 7.....	9	5
AHus 2.....	3	3
Major.....	-----	5
VAnat 6 <sup>1</sup> .....	9	5
Elective.....	-----	2
PhysT 5.....	1	-----

## Second Semester

	Hours	Units
Phys 2.....	7	5
AHus 3.....	3	3
Major.....	-----	5
VMed 5 <sup>1</sup> .....	3	3
Elective.....	-----	4
PhysT 5.....	1	-----

Totals.....

22+    20

Totals.....

14+    20

## FOURTH YEAR

## First Semester

	Hours	Units
Elective.....	-----	5
Major.....	-----	10
REng 1a.....	6	4
PhysT 6.....	1	-----

## Second Semester

	Hours	Units
Elective.....	-----	5
Major.....	-----	10
REng 1b.....	5	3
REng 1c.....	4	1
PhysT 6.....	1	-----

Totals.....

7+    19

Totals.....

10+    19

<sup>1</sup> Courses given in the College of Veterinary Science.

## THE SUGAR TECHNOLOGY CURRICULUM

The Sugar Technology Curriculum leads to the degree of Bachelor of Science in Sugar Technology. The curriculum consists of a four year schedule of collegiate work. It is open to graduates of recognized secondary schools who have completed the first year of the Bachelor of Science General Curriculum and Mathematics 6 and 7 of the College of Agriculture Curricula or equivalent, and who pass an examination in General Chemistry, College English, College Algebra, Plane and Solid Geometry and Plane Trigonometry, provided that students who took these courses in this University and passed them with a grade of 2 shall be admitted without entrance examination. The schedule consists of 593+ week-hours carrying 164 semester units and is arranged as follows:

## FIRST YEAR

## First Semester

	Hours	Units
AChem 2.....	9	5
AChem 3.....	9	5
Agron 4a.....	9	5
Math 8.....	3	3
AHus 1.....	6	4
MilitSc 2.....	3	-----
PhysT 4.....	1	-----

## Second Semester

	Hours	Units
AChem 2.....	9	5
AChem 3.....	9	5
Math 101.....	3	3
Phys 3a.....	6	4
AHus 1.....	6	4
MilitSc 2.....	3	-----
PhysT 4.....	1	-----

Totals.....

40      22

Totals.....

37      21

## SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
AChem 101.....	7	3	AChem 102.....	7	3
AChem 4.....	5	3	Agron 22.....	9	5
Agron 7.....	9	5	REng 1b.....	5	3
REng 1a.....	6	4	REng 1c.....	4	1
PPath 4.....	7	3	Math 102.....	3	3
Phys 3b.....	6	4	Ent 4.....	7	3
PhysT 5.....	1	---	Agron 23.....	5	3
Totals.....	41	22	PhysT 5.....	1	---
			Totals.....	41	21

## SUMMER

Sugar Agronomy 1a—Total hours, 108—1½ units.

## THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
AChem 5.....	5	3	SAgron 1b (Preparation for Irrigation).....	---	---
STech 2.....	9	5	Total hours.....	108	1½
STech 100.....	11+	5	STech.....	68	17
STech 199.....	1	1	Totals.....	176	18½
STech 4.....	9	5			
PhysT 6a.....	1	---			
Totals.....	36+	19			

## FOURTH YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
STech 3.....	9	5	STech 7.....	80	20
STech 100.....	11+	5		---	---
STech 199.....	1	1	Totals.....	80	20
REcon 5.....	3	3			
STech 5.....	9	5			
PhysT 6b.....	1	---			
Totals.....	34+	19			

### THE SIX-YEAR COMBINED ANIMAL HUSBANDRY AND VETERINARY CURRICULUM

This curriculum is designed particularly for those students who wish to go into live stock farming fully prepared to meet all problems incident to the care of animals in health and disease, and for those students who wish to go into the veterinary profession with a good agricultural background.

The first four years of the course are given in the College of Agriculture and lead to the degree of Bachelor of Science in Agriculture. The last two years are given in the College of Veterinary Science; upon the completion of the work of this part of the course the degree of Doctor of

Veterinary Medicine will be granted by said College. The Curriculum is open to graduates of recognized secondary schools on the same conditions as the Bachelor of Science General Curriculum for which see page 354 of this bulletin. Final enrollment in the course will, however, depend upon the student's adaptability to animal work demonstrated in the first year of residence.

The schedule consists of 434+ week-hours carrying 245 semester units arranged as follows:

## COMBINED ANIMAL HUSBANDRY AND VETERINARY CURRICULUM

### FIRST YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
AChem 1.....	9	5	AChem 1.....	9	5
Agron 1.....	6	2	Agron 1.....	6	2
Agron 2.....	3	3	Agron 5.....	5	5
Engl 4.....	5	5	Math 5.....	3	3
REcon 2.....	3	3	REcon 2.....	3	3
AHus 1.....	6	4	AHus 1.....	6	4
Milit Sc 1.....	3	—	Milit Sc 1.....	3	—
PhysT 3.....	1	—	PhysT 3.....	1	—
<b>Totals.....</b>	<b>36</b>	<b>22</b>	<b>Totals.....</b>	<b>36</b>	<b>22</b>

### FIRST SUMMER

[Eight Weeks]

	Hours
FExper A.....	15
FExper B.....	9
FExper C.....	9
<b>Total.....</b>	<b>33</b>

### SECOND YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
AChem 3.....	9	5	AChem 3.....	9	5
Zool 1.....	9	5	Phys 2.....	7	5
REcon 3.....	2	2	REcon 3.....	2	2
AHus 2.....	3	3	AHus 3.....	3	3
Agron 4a.....	9	5	Agron 4b.....	9	5
Milit Sc 2.....	3	—	Milit Sc 2.....	3	—
PhysT 4.....	1	—	PhysT 4.....	1	—
<b>Totals.....</b>	<b>36</b>	<b>20</b>	<b>Totals.....</b>	<b>34</b>	<b>20</b>

### THIRD YEAR

<i>First Semester</i>	Hours	Units	<i>Second Semester</i>	Hours	Units
VAnat 1.....	11	5	VAnat 2.....	14	6
REng 1a.....	6	4	REng 1b.....	5	3
VHstl 1.....	8	4	REng 1c.....	4	1
AHus Elect.....	—	5	AHus Elect.....	—	5
PPhsL 4.....	7	3	Embr.....	5	3
PhysT 5.....	1	—	PhysT 5.....	1	—
<b>Totals.....</b>	<b>38 +</b>	<b>21</b>	<b>Totals.....</b>	<b>29 +</b>	<b>18</b>

<sup>1</sup> Course given in the College of Veterinary Science.

## THE COLLEGE OF AGRICULTURE

## FOURTH YEAR

## First Semester

## Second Semester

	Hours	Units		Hours	Units
AHus Thesis.....		5	AHus Thesis.....		5
AHus Elect.....		6	AHus Elect.....		3
Bact 1.....	8	4	Bact 2.....	8	4
VAnat 3.....	11	5	VAnat 4.....	8	4
PhysT 6.....	1	—	VPhysl 1.....	9	5
Totals.....	20 +	20	PhysT 6.....	1	—
			Totals.....	26 +	21

## FIFTH YEAR

## First Semester

## Second Semester

	Hours	Units		Hours	Units
VPhar 1.....	5	3	VPhar 2.....	6	4
VMed 1.....	2	2	VMed 2.....	3	3
VPath 1.....	8	4	VPath 1.....	4	2
ClinDiag.....	3	3	VSurg 1.....	3	3
Parasit 1.....	4	2	Autop 1.....	3	1
VClin 1.....	15	5	HShoe.....	3	1
	—	—	VHyg 1.....	3	1
Totals.....	37	19	VClin 2.....	15	5
			Totals.....	40	20

## SIXTH YEAR

## First Semester

## Second Semester

	Hours	Units		Hours	Units
VHyg 2.....	1	1	VHyg 3.....	1	1
VSurg 2.....	3	3	VSurg 2.....	3	3
VPath 2.....	2	2	VMed 4.....	5	5
VMed 3.....	5	5	Obst.....	3	3
VPath 3.....	4	2	Parasit 2.....	8	4
VSurg 3.....	5	1	VClin 4.....	15	5
Autop 2.....	3	1		—	—
VJur.....	1	1	Totals.....	35	21
VClin 3.....	15	5			
Totals.....	39	21			

## THE MUÑOZ PREPARATORY CURRICULUM

The Muñoz Preparatory Curriculum is an arrangement whereby graduates of secondary agricultural schools of the Bureau of Education of the Philippine Islands of the so called "Muñoz" type may become candidates for the degree of Bachelor of Science. The curriculum is open only to graduates of such schools provided they shall have completed: *Algebra*, 1 unit, and *Plane Geometry*, 1 unit. Applicants must report at the College of Agriculture for attendance at the opening of the Summer Session. Upon completion of the curriculum the students are regularly enrolled in the first year of the Bachelor of Science Curricula with ad-

vanced standing in Farm Experience A, B, and C. The curriculum consists of 35-week hours and is arranged as follows:

## PRELIMINARY NUMBER

	[Eight Weeks]	Hours
Phys 1 .....		25
Math 3 .....		10
Total .....		35

The Muñoz Preparatory Curriculum is not at present in effect due to the fact that the Bureau of Education does not provide instruction in *Algebra* and *Plane Geometry* in the "Muñoz" type of school.

## THE SUPPLEMENTARY CURRICULUM

The Supplementary Curriculum is designed to enable Bachelors of Agriculture to make up their shortage in academic subjects and thereby become eligible for the degree of *Bachelor of Science in Agriculture*.

Bachelors of Agriculture who at the time of matriculation have finished one, two, or three years of secondary work may present credits for advanced standing in the Supplementary Curriculum provided that the same credits have not been elsewhere taken up.

The credits required in the Supplementary Curriculum may be accomplished in the College of Agriculture, in other schools or colleges of the University of the Philippines, or in any public or recognized private secondary school or college. However, a candidate must be registered in the University of the Philippines at the time of receiving the degree.

Students who complete, during the same school year, either the Bachelor of Agriculture General or Animal Husbandry Curriculum and the Supplementary Curriculum are simultaneously eligible for the degrees of *Bachelor of Agriculture* and *Bachelor of Science in Agriculture*. In such cases the latter degree only is conferred.

The schedule of the curriculum usually requires two years for its completion but may be shortened by summer work. The schedule follows:

Group	Units
History .....	20
English Composition or Literature .....	10
Optional:	
Academic .....	20
Academic, Agricultural, or Scientific.....	10
Total .....	60

Courses in the College of Agriculture which classify as "academic" are: Agronomy 2; English, all courses; History, all courses; Modern Languages, all courses; Rural Economics, 1, 2, and 4; and Mathematics, all courses.



# The College of Veterinary Science

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## ADMINISTRATIVE OFFICERS

*President of the University:* Dr. RAFAEL PALMA

*Dean of the College:* Dr. GREGORIO SAN AGUSTIN

*Secretary:* Dr. MIGUEL MUÑOZ

*Heads of Departments:*

*Anatomy:* Dr. MANUEL D. SUMULONG

*Pathology and Bacteriology:* Dr. C. H. SCHULTZ

*Parasitology:* Dr. MARCOS A. TUBANGUI

*Surgery:* Dr. GREGORIO SAN AGUSTIN

*Medicine:* Dr. HUGO B. TUGBANG (in charge)

*Pharmacology and Physiology:* Dr. MIGUEL MUÑOZ (in charge)

*Veterinary Hygiene:* Dr. Z. DE JESUS (in charge)

## CLERK

*Chief Clerk and Property Clerk:* Mr. TOMAS REVUELTA

## CHAIRMEN OF STANDING COMMITTEES

*Athletics:* Dr. HUGO B. TUGBANG

*Buildings and Grounds:* Dr. MARCOS A. TUBANGUI

*Catalogue:* Dr. GREGORIO SAN AGUSTIN

*Clinical Materials:* Dr. ANGEL K. GOMEZ

*Curriculum:* Dr. MANUEL D. SUMULONG

*Library and Supplies:* Dr. MARCOS A. TUBANGUI

*Publication:* Dr. MARCOS A. TUBANGUI

*Scholarship:* Dr. MANUEL D. SUMULONG

*Student Affairs:* Dr. HUGO B. TUGBANG

## BUSINESS DIRECTORY

**OFFICE OF THE DEAN:** The office of the Dean is located in the main Veterinary Building, College Campus, Los Baños, Laguna.

**CORRESPONDENCE:** Address all correspondence to the Dean, College of Veterinary Science, Los Baños College, Laguna, P. I.

## FACULTY OF INSTRUCTION

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**RAFAEL PALMA, B.A., LL.B., LL.D.,**  
President of the University.

**GREGORIO SAN AGUSTIN, D.V.M.,**  
Dean of the College.

**CHARLES H. SCHULTZ, D.V.M.,**  
Professor of Pathology and Bacteriology.

**Bienvenido M. GONZALEZ, Agr.B., M.S., Sc.D.<sup>1</sup>**  
Professor of Animal Husbandry.

**ANGEL K. GOMEZ, D.V.M.,**  
Associate Professor of Pathology and Bacteriology.

**MANUEL D. SUMULONG, M.S., D.V.M.,**  
Assistant Professor of Veterinary Anatomy.

**FRANCISCO O. SANTOS, A.B., M.S., Ph.D.<sup>1</sup>**  
Assistant Professor of Chemistry.

**MARCOS A. TUBANGUI, M.S., D.V.M.,**  
Assistant Professor of Parasitology.

**EDUARDO QUISUMBING, B.Agr., Ph.D.<sup>1</sup>**  
Assistant Professor of Plant Physiology.

**MIGUEL MANRESA, D.V.M.<sup>2</sup>**  
Instructor in Veterinary Medicine.

**MIGUEL MUÑOZ, D.V.M.,**  
Instructor in Physiology and Pharmacology.

**HUGO B. TUGBANG, D.V.M.,**  
Instructor in Veterinary Medicine.

**MANUEL M. ROBLES, D.V.M.,**  
Instructor in Veterinary Anatomy.

**ZACARIAS DE JESÚS, D.V.M.,**  
Instructor in Veterinary Hygiene.

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<sup>1</sup> Faculty members from the College of Agriculture giving instruction to veterinary students.

<sup>2</sup> On leave as University Fellow in the United States.

## **THE COLLEGE OF VETERINARY SCIENCE**

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### **HISTORY**

The College of Veterinary Science derives its origin from the Act founding the University of the Philippines, enacted June 18, 1908, by the First Philippine Legislature in special session. Buildings for the College were erected on land adjoining the Animal Quarantine Station at Pandacan, Manila, and classes opened June, 1910. During the year 1919, the College was transferred to the Campus of the College of Agriculture at Los Baños. In November, 1920, the Veterinary Clinic and Hospital were opened. It is believed that close association of these two colleges will prove of great advantage to the animal industry of the Islands.

### **OBJECTS OF THE INSTITUTION**

In the Philippine Islands there are enormous losses from diseases of live stock and it is therefore necessary to have professionally educated men to cope with the difficulties encountered in fighting these diseases. A century ago, Europe was stimulated by the ravages of rinderpest to establish the first veterinary colleges enjoying government aid. The same force has now been exerted in the Philippine Islands. The prosperity of these Islands is dependent upon agriculture, and that in turn is conditional upon the presence of a large body of well-trained men capable of coping with the problems of animal diseases.

While rinderpest, a disease of bovines, is now occupying special attention, the combating of surra in horses is of no less importance and nowhere in the world are there more opportunities for a comparative study of various diseases of live stock than in these Islands. At present there are few Filipino veterinarians and but few private practitioners of Veterinary Medicine in the Islands.

The first Philippine Legislature displayed foresight in providing opportunity for Filipinos to become trained in a profession that bears a vital relation to the prosperity of the country.

### **LOCATION AND BUILDINGS**

A single-story building, situated at the entrance to the College Campus, contains the laboratories of Pathology and Bacteriology, and Pharmacy and some faculty offices. A large shed with several stalls not very far from this building serves as quarters for the Hospital and operating room. Several other sheds, situated on the grounds of the College afford also accommodation for small animal clinic, post-mortem, horse-shoeing, recovery ward, and quarantine. The other departments and laboratories are lodged at present in some of the buildings of the College of Agriculture.

## ENTRANCE REQUIREMENTS

Candidates for admission to this College must be graduates of the General Secondary Course of the Public Schools of the Philippines or of accredited private schools or colleges, must pass a physical examination, and must comply with the requirements as enumerated on page 45 *et. seq.*

## SPECIAL STUDENTS

Any adult person may be admitted as a special student in any course in the College of Veterinary Science subject to the approval of the department in which the courses are taken, but such students are not considered candidates for graduation.

## EXAMINATIONS

At the end of each semester, or upon the completion of each subject, there will be an examination; examinations will be held at such other times during the semester as the instructor of any course may deem necessary.

## DEPOSIT

A deposit of ₱15 is required of every student at the time of matriculation. The cost of apparatus and other supplies will be charged against this deposit. This deposit will be returned to the student at the time of separation from the College after the necessary charges for damages and breakage have been deducted. Further deposit will be required when needed to cover the cost of supplies issued to the student.

## MILITARY SCIENCE AND PHYSICAL TRAINING

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

## THE CLINICIAN CLUB

This is a society composed of the Junior and Senior students, organized for the purpose of giving mutual aid in gaining general and special medical knowledge, and encouraging investigation work on all lines of research in veterinary science.

This society meets monthly while the college is in session. Prominent scientific men are invited to give lectures during some of the meetings.

## REGISTRATION AND RESIDENCE

Registration in this College shall be from June 7 to June 12.

Residence in Los Baños is required of all students, and any change in address must be reported at the office of the Secretary.

## REQUIREMENTS FOR GRADUATION

In order to receive the degree of Doctor of Veterinary Medicine (D.V.M.) a candidate must be twenty-one years of age and must have successfully

completed the prescribed *four-year* course to the satisfaction of the Faculty. He must have spent at least two years of residence in this College and must be recommended to the Board of Regents by the University Council.

## RULES

### SCHOLARSHIP RULES

The following rules, designed to maintain good scholarship at the College, are in force:

"Rules to Govern the Treatment of Delinquent Undergraduate students and the Action of the Committee on Scholarship in the College of Veterinary Science as adopted and approved by the faculty thereof, July 27, 1922."

The Secretary shall be guided by the application of the following rules regarding failures and conditions:

1. (a) All conditions must be made up within one year, otherwise, the grade of 4 automatically becomes 5. For the removal of conditions, students shall have the privilege of taking one examination during the week preceding the opening of the following session or any other examination required by the faculty without the payment of a fee. Examinations may be held at other times only by special permission of the faculty and on payment of \$10, provided that all conditions must be made up before the opening of the following session. Only students who are in residence will be allowed to take examination for removal of conditions.

(b) A student receiving a grade of 5 in any subject has failed in the course and must repeat the subject. In general a student who has failed twice in any given course will not be given further privilege to register in said course. Upon the consent of the Faculty, however, he may be allowed to register for the third time, or he may be permitted to take the work under a reputable private tutor, whereupon he will be excused from the actual class work but must take the final examination, unless otherwise directed by the Faculty.

(c) No student will be recommended for a degree until all required subjects have been satisfactorily completed. A student deficient in any of the subjects required for admission who may, in spite of such deficiencies, be admitted, must make up all deficiencies within one year. Such arrangement is more likely to be necessary in case of foreign students, who shall be treated with every possible consideration.

The action of the Secretary shall be based on the application of the following rules regarding registration and matriculation:

2. (a) Students shall not be allowed to make changes in registration for courses of study after July 15. A student laborer may

be allowed to drop any subject during the first half of the first semester if he shows evidence that he is unable to carry the work he matriculated in and earn a living at the same time.

(b) Students allowed to drop subjects on or before July 15, shall not be given a grade by the instructor.

(c) A student registering in a given course of study who does not apply for change of registration before July 15, must complete the term's work in the chosen course, otherwise he will be given a grade of FIVE in that subject.

(d) Registration later than July 1, will not be permitted except in case of extraordinary emergency and of foreign students coming from a distance.

(e) Students shall not be admitted to late registration unless a written excuse from the Dean is secured.

3. Any student whose average semestral grade is as low as 5 in one subject or as low as 4 in two subjects shall be considered delinquent.

4. Any student found delinquent as per Rule 3 shall be advised by the Secretary before or during the ensuing registration period. And when matriculating, delinquencies which constitute a failure must be given the preference over new subjects.

5. Students of the first, and second year classes shall be automatically dropped from the College if at the end of a semester they get a record lower than three grades of 4 or one of 5 and one of 4, while students of the Third and Fourth years with such poor records will be required to take the subjects in which they are delinquent and such subjects shall constitute their schedule.

6. *Probation.*—Students dropped from any subjects or suspended by reason of delinquency in class work shall be allowed to re-enter at the opening of the succeeding college year. Similar failures the following year will result in automatic dismissal from the College, subject to the provisions of section (b) of Rule 1.

7. No student on probation will be allowed to hold any student assistantship in the college. In the case of student-laborers the number of hours they may be permitted to work for their living shall be limited at the discretion of the Dean.

8. *Notice to Parents or Guardians.*—In all cases of delinquency under any of the fore-

going sections, information as to such delinquency shall be promptly sent to the parents or guardians concerned.

9. The Dean of the College of Veterinary Science may at his discretion waive any of the provisions of these rules, if in his opinion the interest of the college demands such action.

#### RULES GOVERNING EXCUSES FOR ABSENCES

1. (a) *Excuses*.—Written excuses for all absences must be presented to the instructors direct, and filed with the Secretary.

(b) Medical Certificates must be presented by the student to instructors direct, and filed with the Secretary, signatures of all instructors concerned are to be attached.

(c) All excuses other than medical certificates must first be approved by the Dean, before presentation to instructors.

(d) Excuses for absences during any week must be in the hands of the instructors by the close of class period on Monday following return to class or the absence will be considered unexcused. (See below.)

2. *Work missed during absence*.—All work missed during absence must be made up to the satisfaction of the instructor within a reasonable time. This period shall not exceed 2 class days after return to class for each day's absence.

3. Penalties for absences shall be as follows:

(a) *For unexcused absences*.—Each unexcused absence from any class shall constitute zero for the day's work in the class.

(b) *Excused absences*.—In case work has not been made up as per paragraph 2 above, excused absences are to be penalized by one of the following methods in the option of instructor concerned:

1. Giving extra work, or
2. Giving 85 per cent of grade earned.

#### RULES ADOPTED BY THE FACULTY OF COLLEGE OF VETERINARY SCIENCE

#### GOVERNING THE SELECTION OF GOVERNMENT PENSIONADOS AS IN ACT 2302.

The Faculty Scholarship Committee shall decide the distribution and selection of scholarships granted by the government to the College of Veterinary Science among the four classes of the College. The pension shall be awarded on the following points.

1. The student shall be at least 18 years old. He must be a regular student of the College of Veterinary Science. He must have at least an average of 2 and possess a high scholastic and moral standing.

2. No student shall be awarded a scholarship unless he fulfills the requirements of the above paragraph. Any delinquent subject in his record is sufficient to disqualify him.

3. The awarding of scholarships to members of the first year class shall take place on August 15, thereby allowing a period of probation during which instructors will have an opportunity of becoming acquainted with the students through personal contact and of appraising their scholastic abilities. With the upper classmen, however, the awarding of pension shall be made shortly after the opening of classes and in accordance with their records of the preceding term, the highest general average, other things being equal, shall be the deciding factor.

4. The decision of the Faculty Scholarship Committee shall, however, be subject to the final approval of the Faculty of the College of Veterinary Science.

5. Pensions are awarded every semester.

6. Students holding scholarships from the Government shall not be exempt from the rules governing the treatment of delinquent students adopted by the same Committee.

7. Scholarships that are not utilized during the academic year shall be granted to the Juniors as allowance in case their services are engaged by the Bureau of Agriculture during Summer vacation.

### THE SEMESTRAL COURSES

#### VETERINARY ANATOMY

Assistant Professor SUMULONG and Instructor ROBLES

The Department of Anatomy gives instruction both to Veterinary students and Animal Husbandry students of the College of Agriculture. In Gross Anatomy the instruction is mostly by laboratory work and recitations; lectures supplemented with demonstration are only given on those parts which are not very clear to the students. Special emphasis is placed on the anatomical relations of those parts which are most directly related to surgical operations. Preserved cadavers are employed

for dissection in order to give the students sufficient time to study and observe the relative positions of the various parts of the animal body.

For demonstration the Department has a sufficient collection of charts and mounted and unmounted anatomical specimens. An abundant supply of disarticulated skeletons of different species of domestic animals is also available. For the instruction in Embryology the laboratory is equipped with reconstructed models of amphioxus, frog, chick, and other animals.

**Veterinary Anatomy 1 (VAnat 1).**—This course includes the study of the bones, articulations, and muscles of the horse. In Osteology the students are required to study and make drawing—made to scale—of the different bones. Arthrology is given immediately after Osteology, and the instruction is mostly by laboratory work, consisting of the dissection of the various structures that enter into the formation of different joints, together with the consideration of their various movements. Preserved specimens are employed for the dissection. The students are quizzed twice a week on the assignment given them from time to time and on the work covered in the laboratory.

In Myology, which immediately follows Osteology and Arthrology, each student completes the dissection of every muscle of one-half of the horse's body. The class is divided into groups of two students, each group working on an assigned region of the body. The group or groups working on the same region is given a definite number of muscles to be dissected and studied during each laboratory period. Students are required to demonstrate to the instructor the dissected muscle and other structures during the laboratory hours, and they are quizzed twice a week on all the work performed.

11 hours a week (9 Lab, 2 Recitation-demonstration); first semester, credit 5 units. Total, 176 hours.

**Veterinary Anatomy 2 (VAnat 2).**—This course comprises Angiology, Neurology, and Splanchnology of the horse and Comparative Osteology and Arthrology. The course is taught by recitations, demonstration, and laboratory work, but mostly by the latter. Each student has to complete the dissection of one-half of the body. At the beginning of each laboratory period the students are quizzed on the parts assigned and dissected during the last laboratory hours.

In Comparative Osteology and Arthrology the bones of carabao, ox, pig, and dog are studied in similar manner as those of the horse, giving special attention to those bones and articulations which present prominent differential characteristics.

Prerequisite: Anatomy 1.

14 hours a week (12 Lab, 2 Recitation-demonstration); second semester, credit 6 units. Total, 224 hours.

**Veterinary Anatomy 3 (VAnat 3).**—This course consists of systematic dissection of muscles and vascular, nervous, digestive, respiratory and uro-genital systems of ox or carabao, goat, pig and dog. Special emphasis is laid on the digestive and uro-genital systems of ruminants and on those organs and structures presenting marked differential features. The class is divided into groups and each group is given a definite assignment from time to time until the dissection of the entire half of the given cadaver is

completed. During the laboratory hours the students have to demonstrate to the instructor the parts dissected; they are quizzed twice a week on all the work covered in the last dissection period.

Prerequisites: Anatomy 1 and 2.

11 hours a week (9 Lab, 2 Recitation-demonstration); first semester, credit 5 units. Total, 176 hours.

Veterinary Anatomy 4 (VAnat 4).—This course is designed to give the student a good knowledge of the gross and microscopic anatomy of the special sense organs and of the foot of the horse; and to emphasize those parts of the body most concerned in surgical operations. In the laboratory the students dissect and sketch the foot, the eye, and the ear of the horse and ox; stained microscopic sections of the eye and ear and embryonic foot of the horse are also studied. Each student is required to study and sketch the different preserved cross-sections and dissections of those parts of the horse's body most commonly subjected to surgical and diagnostic procedures. Living horses are frequently used to demonstrate the most salient features that serve as landmarks for surgical fields.

Prerequisites: Anatomy 1 and 2.

8 hours a week (6 Lab, 2 Lecture-demonstration or Recitation); second semester, credit 4 units. Total, 128 hours.

Veterinary Histology (VHist).—This course is taught by lectures, recitations, and laboratory work. The course is intended to give the student a good knowledge of the minute anatomy of the various tissues and organs of the animal body. Each student is provided with a microscope, a laboratory direction, and a collection of more than 100 slides of stained microscopic sections from dog, pig, cat, and other domestic animals.

Prerequisites: Zoölogy 1 and Anatomy 1.

8 hours a week (6 Lab, 2 Lecture-recitation); first semester, credit 4 units. Total, 128 hours.

Veterinary Embryology (VEmbr).—This course consists of the study of the origin and development of the various tissues and organs of the domestic animals and the appendages of the fetus. A general consideration of sex and inheritance and various phenomena related to the process of reproduction is also taken up in the lectures. In the laboratory each student is required to study and sketch both fresh and whole-mount chick embryos of different incubation periods. The developing organs are studied in serial sections of both pig and chick embryos.

Prerequisites: Zoölogy 1 and Anatomy 1.

5 hours a week (3 Lab, 2 Lecture or Recitation); second semester, credit 3 units. Total, 80 hours.

## PHARMACOLOGY AND PHYSIOLOGY

Professor ..... and Instructor MUÑOZ

Veterinary Pharmacology 1 (VPhar 1); *MATERIA MEDICA AND PHARMACY*.—A consideration of the properties of drugs, their official names, synonyms, sources, physical character, and incompatibilities. Laboratory work includes the compounding of the most important pharmaceu-

## SEMESTRAL COURSES: PATHOLOGY, BACTERIOLOGY 405

tical preparations and training in dispensing is given in the Pharmacy of the College.

5 hours a week (3 Lab, 2 Lect); second semester, credit 3 units.

**Veterinary Pharmacology 2 (VPhar 2); MATERIA MEDICA AND THERAPEUTICS.**—A consideration of the most important drugs indicated for therapeutic purposes.

6 hours a week (3 Lab, 3 Lect); first semester, credit 4 units.

**Veterinary Physiology (VPhsl).**—This course includes the chemistry of proteins, fats, carbohydrates, tissues, blood, digestion, excretion, and metabolism. Part of the time is devoted to quantitative analysis of urine, blood, and milk. A study of the physiology of the muscle and nerve, blood and lymph, circulation, respiration, digestion, secretion, fats, proteins, and carbohydrates is also given attention. A consideration of the locomotor system including the static and kinetic functions of the joints, muscles, tendons, and ligaments that are connected therewith, and the various phases of locomotion as well as the physiology of the foot are also taken up. The laboratory exercises are selected to illustrate the subject matter of the didactic course.

9 hours a week (6 Lab, 3 Lect); second semester, credit 5 units.

### PATHOLOGY AND BACTERIOLOGY

Professor SCHULTZ and Associate Professor GOMEZ

**Bacteriology 1 (Bact 1); GENERAL BACTERIOLOGY.**—This course includes a study of the structure, classification, and life processes of non-pathogenic bacteria. Lectures, quizzes, and laboratory work are designed to teach the student methods of cleaning and sterilizing glassware, methods of preparing culture media, isolation of pure cultures, staining bacteria, and detecting the products of their growth. A study of the bacteriology of milk and water is included in the course.

8 hours a week (6 Lab, 2 Lect); first semester, credit 4 units.

**Bacteriology 2 (Bact 2); PATHOGENIC BACTERIOLOGY.**—This course includes thorough systematic study of various pathogenic bacteria, supplemented by lectures and demonstrations and individual laboratory work on bacteriological diagnosis. Lectures and demonstration on serology and vaccine therapy are also included in this course.

8 hours a week (6 Lab, 2 Lect); second semester, credit 4 units.

**Veterinary Pathology 1 (VPath 1); GENERAL PATHOLOGY.**—The systematic study of disease processes with laboratory work on pathogenic histology, supplemented by demonstration of pathological specimens from time to time.

8 hours a week (3 Lab, 2 Lect); first semester, credit 4 units.

4 hours a week (3 Lab, 1 Lect); second semester, credit 2 units.

**Veterinary Pathology 2 (VPath 2); SPECIAL PATHOLOGY.**—This course includes the study of the pathology of the different organs, embracing the blood and blood-forming organs, the spleen and lymphatics;

the respiratory, digestive, urinary, osseous, muscular, reproductive, and cutaneous systems.

2 hours a week (Lect); first semester, credit 2 units.

Veterinary Pathology 3 (VPath 3); *LABORATORY DIAGNOSIS*.—Laboratory training in the examination of various secretions and excretions such as urine, saliva, milk, etc.; pathological tissues and fluids; examination of skin scrapings for external parasites; feces for internal parasites, sero-diagnostic tests, etc.

4 hours a week (3 Lab, 1 Lect); second semester, credit 2 units.

Autopsy 1 and 2 (Autop 1 and 2).—In this course, students are trained in the technique of performing post-mortem examinations. Depending upon the size of the class, the students are arranged in groups of three or four. One student takes notes and the rest of the group are assigned to the different regions of the body. During the autopsy, the students are requested to describe and diagnose in a brief manner the pathological changes found in each organ dissected out. A summary of the lesions is made at the termination of the necropsy and the cause of death is then determined.

The students are required to submit a well-written protocol within two days after the necropsy. This is corrected and placed on file.

3 hours a week (Lab); third year, second semester, credit 1 unit.

3 hours a week (Lab); fourth year, first semester, credit 1 unit.

#### VETERINARY PARASITOLOGY

Assistant Professor TUBANGUI and Instructor .....

The courses are designed primarily to meet the needs of Veterinary practitioners, government field veterinarians, and animal husbandmen, but they may also be useful to those who wish to take up parasitology as a special line of work. Lectures and laboratory instruction are supplemented by clinical observations and by practice in treating animals for parasites and parasitic diseases. Ample opportunity is afforded for post-mortem work in the veterinary clinic.

Zoölogy 1 (Zoöl 1); *GENERAL ZOÖLOGY*.—This course is intended to be supplementary to anatomy and as an introduction to parasitology. It includes lectures, recitations, laboratory work, and field work on the classification, morphology, and physiology of the various groups of animals.

Textbook: Hegner, College Zoölogy.

9 hours a week (6 Lab, 2 Lect, 1 Recit); first semester, credit 5 units.

Parasitology 1 (Parasit 1); *VETERINARY ENTOMOLOGY*.—This course deals with the causation and transmission to disease by insects and other arthropods. Students are asked to collect and to identify specimens from different domesticated animals and are given actual practice in the destruction and eradication of the most injurious species.

Prerequisite: Zoölogy 1 or its equivalent.

4 hours a week (3 Lab, 1 Lect); first semester, credit 2 units.

Parasitology 2 (Parasit 2); *VETERINARY HELMINTHOLOGY AND PROTOZOÖLOGY*.—This course deals with the parasitic worms and parasitic protozoa of demesticated animals from the point of view of

morphology, taxonomy, life history, pathogenicity, treatment, and prophylaxis. Emphasis will be placed on the general principles of parasitology.

Prerequisite: Zoölogy 1 or its equivalent and Veterinary Medicine 1.

8 hours a week (6 Lab, 2 Lect); second semester, credit 4 units.

### VETERINARY SURGERY

Dean SAN AGUSTIN and Instructor.....

**HORSE SHOEING (HShoe).**—Lectures, recitations, and demonstrations are devoted to the anatomy and physiology of the horse's foot, relationship of the foot to the rest of the limb, influence of the conformation over forms of hoofs, flight of feet, diseases of the foot, types of shoes, and the proper method of shoeing healthy and defective hoofs.

3 hours a week; second semester, credit 1 unit.

**Veterinary Surgery 1 (VSurg 1); GENERAL SURGERY.**—Lectures and recitations on the principles of surgery, with practical demonstrations in surgical restraint, wound and fracture dressing, surgical bacteriology, bandaging, administration of anæsthetics, etc.

3 hours a week (Lect); second semester, credit 3 units.

**Veterinary Surgery 2 (VSurg 2); REGIONAL SURGERY.**—Lectures on surgical diseases of the horse, ox, and pig. Cases in the clinic are used for demonstration whenever available.

3 hours a week (Lect); throughout the year, credit 6 units.

**Veterinary Surgery 3 (VSurg 3); OPERATIVE SURGERY.**—Lectures and operative practice in which the important surgical operations are performed by the students on anæsthetized animals under the supervision of the instructor with special attention to surgical anatomy and technique.

5 hours a week; first semester, credit 1 unit.

**OBSTETRICS (Obst).**—Lectures, recitations, and demonstrations on clinical cases. The course takes up the obstetric anatomy of domestic animals, physiology of reproduction, sterility, pre-parturient diseases, dystocia, and post-parturient diseases.

3 hours a week (Lect); second semester, credit 3 units.

**SURGICAL CLINICS 1 and 3 (SurgClin 1 and 3).**—Cases are assigned to sections, composed of Senior student with Junior assistants, under the direct supervision of the instructor in charge. Students diagnose, assist in the necessary operations, and carry out the post-operative treatment. An out-patient clinic is part of the regular clinical instruction. Students accompanied by an instructor are required to visit patients in the surrounding country, make diagnosis and prescribe treatments under actual field conditions.

15 hours a week; first semester, credit 5 units.

### VETERINARY MEDICINE

Professor SCHULTZ,<sup>1</sup> Associate Professor GOMEZ,<sup>1</sup> and Instructor TUGBANG

The study of internal medicine begins after the students have acquired a thorough knowledge of the fundamental studies—anatomy, physiology, pathology, histology, bacteriology, and *materia medica*.

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<sup>1</sup> From the Department of Pathology and Bacteriology.

The lectures and recitations are supplemented by the study of special cases as they are found in the College Clinic where the student becomes thoroughly conversant with the causes, symptoms, diagnoses, treatment, and prognosis of various diseases.

**CLINICAL DIAGNOSTICS** (*ClinDiag*).—The course consists of a systematic study of the methods of diagnosis and symptoms of diseases in all the various groups of organs. A practical application of the same is made on the various species of domestic animals.

Textbook: *Malkamus, Clinical Diagnostics of the Internal diseases of Domestic Animals. Translation.*

3 hours a week (Lect); first semester, credit 3 units.

**Veterinary Medicine 1** (*VMed 1*); *DISEASES OF SMALL ANIMALS*.

Textbook: *Brumley. Diseases of Small Domestic Animals.*

2 hours a week (Lect); first semester, credit 2 units.

**Veterinary Medicine 2** (*VMed 2*) Diseases of the respiratory, circulatory, and digestive systems of large animals.

Textbook: *White. Principles and Practice of Veterinary Medicine.*

3 hours a week (Lect); second semester, credit 3 units.

**Veterinary Medicine 3** (*VMed 3*).—Diseases of the urinary and reproductive organs, nervous system, metabolism, blood and organs of locomotion of large animals.

5 hours a week (Lect); first semester, credit 5 units.

**Veterinary Medicine 4** (*VMed 4*).—Infectious diseases and differential diagnoses of large domestic animals.

5 hours a week (Lect); second semester, credit 5 units.

**MEDICAL CLINICS 2 and 4** (*MedClin 2 and 4*).—In this course students are given opportunity to diagnose, prescribe, and treat animal diseases that are presented to the clinics of the College under the direct supervision of the Professor in charge. Junior students act as assistants to their Senior partners.

15 hours a week; second semester, credit 5 units.

**VETERINARY JURISPRUDENCE** (*VJur*).—This course is given for the purpose of familiarizing the prospective graduate with the principles of veterinary ethics and the laws pertaining to the profession in the Philippine Islands, as well as the liabilities of the veterinarian and his professional compensation.

1 hour a week (Lect); first semester, credit 1 unit.

**Ambulatory Clinic.**—Supplementary to the clinical instruction given to the Senior students, the ambulatory clinic is conducted for the purpose of giving them clinical experience under field conditions. Practical surgical operations; such as, firing, castration, etc., are performed, and medicines are prescribed to medical cases.

The ambulatory clinic is also conducted in the form of an extension work among the farmers and live-stock owners in the neighboring towns.

**VETERINARY HYGIENE**

Professor SCHULTZ<sup>1</sup> and Instructor DE JESUS

Veterinary Hygiene 1 (VHyg 1); *MILK INSPECTION*.—This course includes the physical examination of dairy cattle and a consideration of the sanitary and hygienic necessities requisite to the production of clean milk. It is given as a supplement to the courses in Chemistry and Bacteriology where the chemical and bacteriological phases of this question are considered.

3 hours a week; second semester, credit 1 unit.

Veterinary Hygiene 2 (VHyg 2); *MEAT INSPECTION*.—This course consists of a study of the laws and rules governing the meat industry of the Philippines, and a study of the methods used at the various slaughterhouses in and around Manila.

1 hour a week (Lect); first semester, credit 1 unit.

Veterinary Hygiene 3 (VHyg 3); *PREVENTIVE MEDICINE*.—This course embraces the measures applicable in the prevention of infectious diseases of animals; special consideration being given to the methods of quarantine, disinfection, hygiene, and sanitation of animal habitations.

1 hour a week (Lect); second semester, credit 1 unit.

## **RECIPROCAL COURSES OF THE COLLEGE OF VETERINARY SCIENCE AND THE COLLEGE OF AGRICULTURE**

**CHEMISTRY**

Agricultural Chemistry 1 (AChem 1); *GENERAL CHEMISTRY*.—The course comprises a thorough study of the fundamental principles of general chemistry with a very brief study of organic chemistry and some qualitative analysis. The course requires two lectures, one recitation, and six hours of laboratory work weekly. Required in all Curricula and in the College of Veterinary Science and School of Forestry.

Prerequisite: High School Physics or Physics 1.

Throughout the year, credit 10 units.

Agricultural Chemistry 3 (AChem 3); *COMPOUNDS OF CARBON*.—This course covers the preparation, properties, and structure of typical organic compounds and includes a discussion of theories of reactions in their bearing on the formation of these compounds. The course requires three lectures and six hours of laboratory work weekly. Required in the Sugar Technology Curriculum and in the College of Veterinary Science and School of Forestry. Prerequisite: Chemistry 1.

Throughout the year, credit 10 units.

**ANIMAL HUSBANDRY**

Animal husbandry 1 (AHus 1); *GENERAL PRINCIPLES OF ANIMAL HUSBANDRY*.—The larger part of the course deals with the teaching of the fundamental principles underlying the practice of animal husbandry in all its phases, such as feeding, breeding, housing, care, and

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<sup>1</sup> From the Department of Pathology and Bacteriology.

management. The laboratory part of the course consists mainly of judging of the different classes, types, and breeds of animals with relation of type to function. Whenever opportunity is afforded the students are given demonstrations in castrating, slaughtering, and the preservation of meats. Trips are taken during the year to centers of animal industry. The course requires two lectures and six hours of laboratory work weekly. Required in all Curricula and in the College of Veterinary Science.

Throughout the year, credit 10 units.

**Animal Husbandry 2 (AHus 2); PRINCIPLES OF ANIMAL NUTRITION.**—The course deals with the preparation of feeds, the computation of rations, and the methods of feeding for economic production. The course is conducted through lectures and recitations. Required in Animal Husbandry Curricula and in the College of Veterinary Science.

Prerequisite: Animal Husbandry 1.

First semester, credit 3 units.

**Animal Husbandry 3 (AHus 3); ANIMAL BREEDING.**—This course deals with principles of constructive breeding. It is conducted through lectures. Required in Animal Husbandry Curricula and in the College of Veterinary Science. Prerequisite, Animal Husbandry 2.

3 hours a week (Lect); second semester, credit 3 units.

**Veterinary Anatomy 6 (VAnat 6); ELEMENTARY ANATOMY.**—This course is designed to meet the needs of the Agricultural students taking animal husbandry.

It includes in a general way the anatomy of domestic farm animals with the object of giving the students a proper understanding of conformation, the various levers of locomotion, and the digestive and respiratory systems.

Laboratory work consists of studying and drawing the most important bones and other parts of the body as the instructor may indicate. Demonstration of previously dissected parts of the body will be given from time to time. Required of Animal Husbandry students.

9 hours a week (6 Lab, 3 Lect); first semester, credit 5 units.

**Veterinary Medicine 5 (VMed 5); COMMON DISEASES OF ANIMALS.**—This course is designed for students enrolled in the Animal Husbandry course of the College of Agriculture and embraces a consideration of the common disease of horses, cattle, poultry, swine, sheep, and goats. The diagnosis and treatment of common ailments, sanitary measures, and minor surgical operations are also given attention.

Textbook: Hadley, Principles of Veterinary Science.

3 hours a week (Lect); second semester, credit 3 units.

#### BOTANY

**Plant Physiology 3: VETERINARY BOTANY.**—This course is essentially a study of plants of economic importance from the view point of the veterinarian. Fodder, medicinal, and poisonous plants receive particular attention. In the laboratory work fresh and herbarium specimens are examined and the students are trained to run out the identity of the unknown plants and to perform qualitative chemical tests on suspected poisonous species. The course requires two lecture hours weekly.

Second semester, credit 2 units.

**BACTERIOLOGY**

**Bacteriology 1 (Bact 1); GENERAL BACTERIOLOGY.**—This course includes a study of the structure, classification, and life processes of non-pathogenic bacteria. Lectures, quizzes, and laboratory work are designed to teach the student methods of cleaning and sterilizing glassware, methods of preparing culture media, isolation of pure cultures, staining bacteria, and detecting the products of their growth. A study of the bacteriology of milk and water is included in the course.

8 hours a week (6 Lab, 2 Lect); first semester, credit 4 units.

## **THE FOUR-YEAR CURRICULUM IN VETERINARY SCIENCE**

*Leads to the degree of Doctor of Veterinary Medicine (D.V.M.). Open to Graduates of Approved Four-Year Secondary Schools*

### FIRST YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
AChem 1 .....	9	5	AChem 1 .....	9	5
Zool 1 .....	9	5	Embr .....	5	3
VAnat 1 .....	11	5	VAnat 2 .....	14	6
AHus 1 .....	8	4	AHus 1 .....	8	4
Total.....	37	19	VBot .....	2	2
			Total.....	38	20

### SECOND YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
AChem 3 .....	9	5	AChem 3 .....	9	5
VAnat 3 .....	11	5	VAnat 4 .....	8	4
Bact 1 .....	8	4	Bact 2 .....	8	4
AHus 2 .....	3	3	VPhs 1 .....	9	5
Hstl .....	8	4	VPhar 1 .....	5	3
Total.....	39	21	Total.....	39	21

### THIRD YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
VPhar 2 .....	6	4	AHus 3 .....	3	3
VMed 1 .....	2	2	VMed 2 .....	3	3
VPath 1 .....	8	4	VPath 1 .....	4	2
ClinDiag .....	3	3	VSurg 1 .....	3	3
Parasit 1 .....	4	2	Autop 1 .....	3	1
VClin 1 .....	15	5	HShoe .....	3	1
Total.....	38	20	VHyg 1 .....	3	1
			VClin 2 .....	15	5
			Total.....	37	19

## FOURTH YEAR

<i>First Semester</i>			<i>Second Semester</i>		Hours	Units
	Hours	Units	Hours	Units		
VHyg 2 .....	1	1	VHyg 3 .....	1	1	
VSurg 2 .....	3	3	VSurg 2 .....	3	3	
VPath 2 .....	2	2	VMed 4 .....	5	5	
VMed 3 .....	5	5	Obst .....	3	3	
VPath 3 .....	4	2	Parasit 2 .....	8	4	
VSurg 3 .....	5	1	VClin 4 .....	15	5	
Autop 2 .....	3	1	Total .....	35	21	
VJur .....	1	1				
VClin 3 .....	15	5				
Total.....	<u>39</u>	<u>21</u>				

## **The School of Forestry**

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### **ADMINISTRATIVE OFFICERS**

*President of the University:* Dr. RAFAEL PALMA

*Dean, School of Forestry:* Prof. ARTHUR FREDERICK FISCHER

*In Charge of the School of Forestry:* Prof. HAROLD CUZNER

*Secretary of the School of Forestry:* Prof. LUIS R. SALVOSA

### **BUSINESS DIRECTORY**

Address all correspondence to the School of Forestry, Los Baños College,  
Laguna.

## FACULTY OF INSTRUCTION

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**ARTHUR F. FISCHER, C.E., M.F.,**

Professor of Tropical Forestry; Dean, School of Forestry; and  
Director of Forestry, Manila.

**HAROLD CUZNER, B.S.F.,**

Professor of Dendrology and in charge, School of Forestry.

**O. W. PFLUEGER, M.F.,**

Professor of Forest Management and Lumbering and Chief,  
Division of Investigation, Bureau of Forestry, Los Baños  
College, Laguna.

**L. R. SALVOSA, A.B. (Graduate U. S. Military Academy, West Point),**  
Professor of Mathematics and Engineering and Secretary,  
School of Forestry.

**ANNE M. PENDLETON,** Graduate, Los Angeles Teacher's College,  
Assistant Professor of English.

**CARLOS SULIT, M.F.,**

Assistant Professor of Forest Management.

**FELIPE R. AMOS, M.F.,**

Assistant Professor of Mathematics and Engineering.

**FELIPE SALVOZA,** Graduate Ranger,  
Instructor in Dendrology.

**MAMERTO D. SULIT,** Graduate Ranger,  
Assistant in Dendrology.

**ALBERTO BARROS,** Graduate Ranger,  
Assistant in Wood Technology.

**SIMPlicIO BELTRAN, A.B.,**  
Lecturer in Spanish.

**LUIS J. REYES, B.S.,**  
Lecturer in Wood Technology.

**PLACIDO DACANAY, B.S.F., M.F.,**  
Lecturer in Silviculture.

**A. H. MUZZAL,**  
Special Lecturer on Rubber Growing.

## **THE SCHOOL OF FORESTRY**

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### **HISTORY**

A few years after the creation of the Bureau of Forestry under the American régime, there was felt the urgent need of technically trained forest rangers to carry on forest work more effectively in the Philippines, and with the end in view of filling this need, the Philippine Legislature passed in April, 1910, an act authorizing the Director of Forestry to appoint twenty forest pensionados and to construct temporary buildings for their use. This marked the beginning of the School of Forestry, which was first opened to students in June, 1910. The demand for admission to the School of Forestry during subsequent years has so increased that the Legislature later on augmented the number of forest pensionados to be appointed each year. Since the year 1912 the School of Forestry has annually graduated classes of about twenty men, who have all received appointments as rangers in the Bureau of Forestry.

The School of Forestry was a branch of the College of Agriculture until April 1, 1916. On February 4, 1916, Act No. 2578 was passed creating a school in the University of the Philippines to be known as the Forest School, which shall embrace all work hitherto carried in the Forest School of the College of Agriculture of the University of the Philippines.

The course leading to the degree of Bachelor of Science in Forestry was approved late in 1921 and was started at the beginning of the first semester of the school year 1922-1923.

### **GENERAL INFORMATION**

#### **LOCATION**

The School of Forestry is located within the Mount Makiling National Botanic Garden about five kilometers from Los Baños, Laguna Province. It is about one kilometer beyond the College of Agriculture.

The post office is Los Baños College, Laguna, and the railroad station either Los Baños or Junction.

#### **EQUIPMENT AND FACILITIES FOR INSTRUCTION**

A commodius concrete building houses the School of Forestry and five strong material houses serve as dormitories and mess hall. These are located within the Makiling National Botanic Garden which is traversed by numerous trails all centering at the school. The forest thus becomes a huge laboratory where botany, silviculture, and other subjects in forestry can be studied under the different conditions found upon the mountain. In addition there are nearly forty hectares of plantations containing forest trees of economic importance. Over twenty hectares already have

## THE SCHOOL OF FORESTRY

trees large enough to be of value in teaching Silviculture. The school is provided with laboratory and field equipment such as microscopes, surveying and drafting instruments, and lumbering implements. In addition to the work at the School of Forestry, the junior class in the Ranger Course is given four to six weeks field instruction in forestry during the vacation following the junior year. This consists of practical work in coöperation with the Bureau of Forestry.

The senior class in the Ranger Course visits annually a large logging and sawmilling operation where modern methods of lumbering may be studied.

In the degree course ample facilities are provided for instruction at the School of Forestry and College of Agriculture. The summer terms are spent in the field and work is given in Engineering and Dendrology.

The Bureau of Forestry maintains a library of forestry and technical works at the school. The library is indebted to the Director of Forestry, A. F. Fischer, for over one hundred volumes of fiction. The school also has access to the library of the Bureau of Forestry and the Philippine Public Library in Manila, and that of the College of Agriculture in Los Baños College.

### ENTRANCE REQUIREMENTS

Students who wish to enter the Ranger Course must have completed at least the second year of high school or its equivalent. Graduates of high schools or institutions of similar standing are preferred. Requirements for admission to the degree course are given on the page preceding the list of courses.

### TERMS OF SCHOLARSHIPS

The Bureau of Forestry provides scholarships in the Ranger Course for a limited number of students amounting to thirty pesos per month while the student is actually attending classes.

Scholarships are restricted to students who have the above entrance requirements and to forest guards of the Bureau of Forestry who have shown marked ability in their work.

Students who wish to secure a scholarship should write to the Division Superintendent of Schools who has jurisdiction over the high school in which they have received their training, requesting him to certify their high-school standing to the Director of Education. Notification of such action should be sent at the same time to the Dean, School of Forestry, Los Baños College. The Director of Education will certify their names to the Director of Forestry as eligible for appointment.

The student obligates himself to serve in the Bureau of Forestry for a period equal to that in which he received the benefits of the scholarship. The benefits of the scholarship will be withdrawn if the student does not maintain a suitable proficiency.

### REQUIREMENTS FOR GRADUATION

The ranger course can be completed in two years in case the student has secured a passing grade in all his subjects and has maintained a high standard of honesty and industry. In order to complete the course in two years it is very important that the student enter the school in April and complete the course in Botany by June. The degree course

can be completed in three more years, including the summer terms, provided the student has passed all his subjects and shown himself worthy of graduation.

#### MILITARY SCIENCE

Military Science and Tactics is a required subject in the curricula of all the colleges of the University. It is a prerequisite for graduation and must be completed during the first two years of residence in the University. This requirement does not apply to schools like the Conservatory of Music and the School of Fine Arts.

#### OPPORTUNITIES FOR GRADUATES

The holder of a diploma from the Ranger course is given an appointment as Forest Ranger in the Bureau of Forestry without Civil Service Examination and those who qualify by experience are eligible for promotion.

Some graduates of the school who have completed their contracts with the Government have entered the Forest Service of different governments and companies in the East Indies. Such men are also eagerly sought by lumbermen and plantation owners in the Philippines.

Chinese graduates of the school are engaged in forestry work in different parts of China.

There will be an increased demand for foresters in the Orient and holders of a degree from this school will find themselves well qualified to hold positions and compete with graduates of institutions of similar standing.

#### STUDENT ACTIVITIES

While the school is not a military institution, such discipline and adherence to regular hours will be required as are conducive to good work.

The students manage their own affairs through an organization known as the "Philippine Forestry Club" which holds regular meetings once a month of a business, literary, and social nature.

The student body owns a number of mandolins and guitars which form the nucleus of the Forest School orchestra.

The students are also provided with athletic equipment for use on their local grounds. In addition they participate in University athletics.

#### NECESSARY PERSONAL EQUIPMENT

Students should come provided with a poncho, bedding, and mosquito net. Cots may be secured at the school. An arithmetic, dictionary, and high-school textbooks are required as they are invaluable for reference. In addition, students should provide themselves with serviceable shoes, working clothes, and a sharp, well tempered work bolo and scabbard. The blade should not be less than forty centimeters long. Sharp pointed, short bladed bolos are not satisfactory. Firearms are not permitted.

#### FEES AND LIVING EXPENSES

Tuition is free in the Ranger course and there are no laboratory charges. A fee of ₱5 is charged by the University for the diploma in this course.

Students in the degree course will be required to pay necessary laboratory fees and other fees charged by the University. The diploma fee is ₱10.

Each student must purchase a cedula as required by law. Student body dues for athletics in the School of Forestry and University of the Philippines amount to ₱3 per year. In case of sickness the student is entitled to the service of the physician stationed at the College of Agriculture.

Cottages are provided for the use of students and they conduct their own mess and care for their quarters. The cost of meals amounts to about ₱16 per month. Students have found it advisable to raise their own vegetables in order to secure an adequate and varied food supply and therefore gardening will be required of all who board at the student mess. In order to furnish the mess steward with a working capital, a deposit of ₱10 will be required of all who eat at the mess. This deposit will be returned when the student leaves the school.

A small charge is made to cover loss and depreciation of mess equipment and all property of the Bureau of Forestry must be paid for by the person losing or breaking the same.

## THE RANGER COURSE IN FORESTRY

### JUNIOR YEAR

Botany I.....	April and May.
Mathematics I.....	First semester.
Mathematics II.....	Second semester.
English I.....	Both semesters.
Forest Physiography I.....	First semester.
Dendrology I.....	Both semesters.
Forest Engineering I.....	Both semesters.
Silviculture I.....	Second semester.
Woodsmanship and Military Science.....	Both semesters.
Spanish I.....	Both semesters.
Forest Engineering II.....	Four to six weeks following second semester.

### SENIOR YEAR

English II.....	Both semesters.
Wood Technology I.....	First semester.
Forest Engineering III.....	First semester.
Forest Engineering IV.....	Second semester.
Silviculture II.....	Both semesters.
Management I.....	First semester.
Management II.....	Second semester.
Forest Administration I.....	Second semester.
Woodsmanship and Military Science.....	Both semesters.
Spanish II.....	Both semesters.

## COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN FORESTRY

### REQUIREMENTS FOR ADMISSION

Candidates for admission to the course in Forestry, leading to the degree of Bachelor of Science in Forestry, must be graduates of the Ranger Course of the School of Forestry, and have not less than two years of field experience in the Bureau of Forestry.

Candidates from other institutions may be admitted, provided they have had an equivalent training and experience in forestry subjects.

Students who are not candidate for a degree may be admitted to pursue work in special subjects provided that they have had the necessary preliminary training.

### THE THREE-YEAR CURRICULUM IN FORESTRY

*Leads to the Degree of Bachelor of Science in Forestry; B.S.F. Open to Graduates of the Ranger Course of the Forest School who have not less than two years field experience in the Bureau of Forestry.*

#### FIRST YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
Eng III .....	5	5	Eng IV .....	5	5
Chem 1 (C.A.) .....	9	5	Chem 1(C.A.) .....	9	5
Math III .....	5	5	Phys 2 (C.A.) .....	5	
PPath 3 (C.A.) .....	3		Entom 3 (C.A.) .....	3	
Forest Econ .....	2		Forest Policy and History .....	2	
Total.. .....	20		Total.. .....	20	

#### SUMMER TERM

	Units
FEng V .....	9
Dend II .....	6
Total.. .....	15

#### SECOND YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
Chem 3 (C.A.) .....	9	5	Chem 3 (C.A.) .....	9	5
Silv III .....	5		Silv III .....		5
Physiog II .....	5		Silv IV .....		2
FAdm II .....	2		Forest Protection .....		2
FAdm III .....	3		FMan IV .....		2
Total.. .....	20		FEng VI .....		2
Total.. .....			Total.. .....		19

#### SUMMER TERM

	Units
FEng VII .....	(Pg ) 15
Total.. .....	15

#### THIRD YEAR

First Semester			Second Semester		
	Hours	Units		Hours	Units
Wood Tech II .....	3		Wood Tech III .....		3
F Utz I .....	5		F Utz II .....		5
FMng V .....	3		FMng VI .....		3
Seminar .....	1		F Utz III .....		3
Forest Investigation .....	5		Forest Investigation .....		5
Arboriculture .....	3		Seminar .....		1
Total.. .....	20		Total.. .....		20

**SEMESTRAL COURSES****ENGLISH**

English I (Engl I); *COMPOSITION AND RHETORIC*.—A practical course in the writing and speaking of English. One theme per week with daily work in the use of idioms, prepositions, and synonyms. Oral discussions and reports will be an important part of the work.

5 hours a week (Class); both semesters, credit 5 units a semester.

English II (Engl II); *ADVANCED COMPOSITION*.—Continuation of English I. In general the themes will bear more directly upon forestry work and will be closely related to the course in Forest Administration.

5 hours a week (Class); Both semesters, credit 5 units a semester.

English III (Engl III); *ADVANCED COMPOSITION*.—Themes together with oral and written reviews of assigned reading in forestry subjects will be held to develop a vocabulary. In addition special drill will be given in idioms and common errors.

5 hours a week (Class); first semester, credit 5 units.

English IV (Engl IV); *TECHNICAL ENGLISH*.—Continuation of the preceding course with the addition of public speaking. Clear enunciation and logical thinking will receive primary consideration.

5 hours a week (Class); second semester, credit 5 units.

**SPANISH**

Spanish I (Span I); *CONVERSATION*.—This course consists of practice in Spanish to fit the student for administrative work in the Bureau of Forestry. Students who are proficient in Spanish are not required to take this course.

2 hours a week (Class); both semesters, credit 2 units a semester.

Spanish II (Span II); *COMPOSITION*.—Practice in writing letters and reports, based upon Spanish translation of the Forest Regulations and similar documents.

2 hours a week (Class); both semesters, credit 2 units a semester.

**MATHEMATICS**

Mathematics I (Math I); *TRIGONOMETRY*.—Required of all students because special emphasis is laid upon problems arising in the engineering courses.

3 hours a week (Class); first semester, credit 3 units.

Mathematics II (Math II); *REVIEW MATHEMATICS*.—Comprehensive review of arithmetic and high-school mathematics. Special drill is given in branches needed by Rangers including engineering formulae and short cuts.

5 hours a week (Class); second semester, credit 5 units.

Mathematics III (Math III); *TRIGONOMETRY AND ADVANCED MATHEMATICS*.—A comprehensive review of trigonometry and instruction in advanced mathematics applicable to forestry.

5 hours a week (Class); first semester, credit 5 units.

**CHEMISTRY**

Agricultural Chemistry 1 (AChem 1) (C. A.); *GENERAL CHEMISTRY*.—The course comprises a thorough study of the fundamental principles of general chemistry with a very brief study of organic chemistry and some qualitative analysis. The course requires two lectures, one recitation, and six hours of laboratory work weekly. Required in all Curricula and in the College of Veterinary Science and School of Forestry.

Prerequisite: High School Physics or Physics 1.

Both semesters, credit 5 units a semester.

Agricultural Chemistry 3 (AChem 3); (C. A.); *COMPOUNDS OF CARBON*.—The course covers the preparation, properties, and structure of typical organic compounds, and includes a discussion of theories of reactions in their bearing on the formation of these compounds. The course requires three lectures and six hours of laboratory work weekly. Required in the Sugar Technology Curriculum and in the College of Veterinary Science and School of Forestry.

Prerequisite: Chemistry 1.

Both semesters, credit 5 units a semester.

**PHYSICS**

Physics 2 (Phys 2) (C. A.); *GENERAL PHYSICS*.—The course emphasizes the fundamentals of mechanics, heat, light, and electricity in application to the physical problems of the farm. The course, requires four lectures and three hours of laboratory work weekly. Required in all Curricula and in the School of Forestry.

Prerequisites: Physics 1 or High-School Physics and Mathematics IV.

Second semester, credit 5 units.

**ENTOMOLOGY**

Entomology 3 (Entom 3) (C. A.); *FOREST ENTOMOLOGY*.—The course is similar to Entomology 1 but more condensed and has special reference to the structure, life history, and habits of the principal economic insects of the Philippine forest. The course requires one lecture and six hours of laboratory work weekly. Elective. Required in the School of Forestry.

Second semester, credit 3 units.

**PLANT PATHOLOGY**

Plant Pathology 3 (PPath 3) (C. A.); *FOREST PATHOLOGY*.—The course includes a study of some of the more important tree diseases and timber rots found in the Philippines. Emphasis is placed on methods of disease prevention and timber preservation. The course requires two lectures and three hours of laboratory or field work per week. Required in the School of Forestry.

First semester, credit 3 units.

**BOTANY**

Botany I (Bot I); *ELEMENTARY BOTANY*.—The purpose of this course is to familiarize the student with the common botanical terms as well as the more important families and genera of vascular plants. A

general idea of plant anatomy and physiology is given to prepare the student for subsequent courses. The collection and preparation of herbarium material is required.

Lectures, laboratory work, and field trips diversify the course. Required of all new students, in the ranger course.

Six credits, daily April and May preceding Junior Year.

#### **FOREST PHYSIOGRAPHY**

*FOREST PHYSIOGRAPHY I.*—Factors affecting topography and drainage; origin, properties, and classification of soils and climatic factors are dealt with in this course.

Lectures and field work.

3 hours a week (Lect); first semester, credit 3 units.

*FOREST PHYSIOGRAPHY II.*—This is a combined course in geology, geography, physiography, and climatology designed to give the student an understanding of the factors influencing the distribution of vegetative type as well as the interdependence of forests and physiographic processes.

First semester, credit 5 units.

#### **DENDROLOGY**

Dendrology I (Dend I); *DENDROLOGY* (Prerequisite: Elementary Botany).—This course consists of a study of the woody vegetation occurring on Mount Makiling. Its object is to enable the student to identify timber trees by means of external morphological characters. In addition, the lectures take up the geographical and local distribution of economic forest trees. Species producing valuable minor products are also studied. Special emphasis is placed upon training the student's powers of observation.

Lectures and field work.

Six credit hours, first semester; four credit hours, second semester.

Dendrology II (Dend II); *TROPICAL DENDROLOGY*.—A general consideration of the families and genera of trees in the tropics, giving special attention to those of economic importance in the Indo-Malayan region. These are studied with reference to their distribution, morphological and silvical characteristics, and the properties and uses of their woods.

The preparation of an herbarium is required.

Lectures, laboratory, and field work.

Six credit hours, summer term following first year.

#### **WOOD TECHNOLOGY**

Wood Technology I (WoodTech I); *IDENTIFICATION OF PHILIPPINE WOODS* (Prerequisite: Elementary Botany).—The greater part of this course is devoted to the identification of commercial woods by the aid of pocket knife and hand lens. Lectures are given on the properties and uses of important species. Text used "Commercial Woods of the Philippines" with references to other books as may be necessary. Lectures and laboratory work.

First semester, credit 4 units.

Wood Technology II (WoodTech II); *TIMBER PHYSICS*.—A study of the mechanical properties of wood including strength, stiffness, toughness, etc., together with the factors that modify them. The suitability of the various timbers of the tropics for special uses will be given considerable attention.

Prerequisite: Physics 1.

Lectures and laboratory work.

Text: Record's Mechanical Properties of Wood.

First semester, credit 3 units.

Wood Technology III (WoodTech III); *WOOD PRESERVATION*.—The causes of decay in wood and their determination including the theory of control. Commercial methods of preservation; fire proofing. The relative natural durability of various timbers particularly those of the Indo-Malayan region.

Prerequisites: Chemistry I and III.

Lectures, laboratory, and field work.

Second semester, credit 3 units.

### SILVICULTURE

Silviculture I (Silv I); *NURSERY PRACTICE*.—The collection, identification and care of seeds, the planting of seeds, and cuttings and care of nursery stock will be given in preparation for Silviculture II.

Lectures, laboratory, and field work.

Second semester, credit 2 units.

Silviculture II (Silv II); *GENERAL SILVICULTURE*.—Lectures. The lectures will include the following topics: Ecological factors upon which silviculture is based, determination of forest types, silvicultural systems, silvical characteristics of various timber species, reforestation.

Filed work. Studies of assigned species. Preparation of forest descriptions, planting nursery stock, and making thinnings.

Both semesters, credit 4 units a semester.

Silviculture III (Silv III); *PRINCIPLES AND PRACTICE OF SILVICULTURE*.—The work in this course will cover artificial and natural regeneration of forests; the principles governing the composition of stands; reproduction cuttings; intermediate cuttings, and silvicultural working plans. Detailed studies will be made of plantings at the School of Forestry. Considerable attention will be given to the silvicultural management of such minor products as rattans and pandans, also mangrove swamps, and other plantings of economic importance.

Text: Hawley's Practice of Silviculture. Lectures and field work.

Both semesters, credit 5 units a semester.

Silviculture IV (Silv IV); *SEEDING AND PLANTING*.—Tree seeds and seedlings; their viability, fertility, collection, storage, shipping, and identification. The students will be given work in planting, laying out, and maintaining a commercial forest nursery giving special attention to the problems along this line that are peculiar to the tropics.

Text: Toumey's Seeding and Planting in the Practice of Forestry.

Lectures, laboratory, and field work.

Second semester, credit 2 units.

**ARBORICULTURE**

**ARBORICULTURE.**—The selection and planting of trees for special purposes such as roadsides, parks, windbreaks, and nurse or shade crops for coffee, etc.

This course also includes such forest crops as rubber, quinine, dyewoods, oils, and others which may be grown in commercial plantations.

Attention is given to pruning, grafting, budding, and the transplanting of large trees.

First semester, credit 3 units.

**FOREST PROTECTION**

**FOREST PROTECTION.**—The protection of forests against animals and inanimate enemies such as fire, climatic agencies, landslides, insects, fungi, injurious mammals, and man with special references to tropical conditions.

Second semester, credit 2 units.

**FOREST ENGINEERING**

**Forest Engineering I (FEng I); ELEMENTARY SURVEYING AND MAPPING.**—Instruction is given in the use of instruments, mechanical drawing and lettering, topographic signs, map making, chaining, pacing, compass work, and the taking of field notes. Also elementary mensuration and valuation surveys in preparation for the field practice following the Junior year.

Lectures and field work.

Both semesters, credit 4 units a semester.

**Forest Engineering II (FEng II); FIELD PRACTICE.**—Field work in a forest to give training in the fundamentals of forest surveying, trail and camp construction, and generally to fit students to handle field parties.

Ten credit hours, six weeks following the second semester.

**Forest Engineering III (FEng III); FOREST SURVEYS.**—Practice in rough methods of leveling, also plane-table, topographic and boundary surveying. This course includes practical work in connection with the Makiling National Botanic Garden. Lectures and field work.

First semester, credit 4 units.

**Forest Engineering IV (FEng IV); LOGGING ENGINEERING.**—An elementary course in the general principles for the location and construction of trails, roads, skid roads, bridges, and logging camps; lumbering and utilization. One of the larger logging operations will be visited in connection with this course. Lectures and field work.

Second semester, credit 6 units.

**Forest Engineering V (FEng V); PLANE SURVEYING.**—An intensive course in the theory and practice of plane surveying including the use of the chain, compass, level, plane-table, transit, and stadia. Practice in running survey lines by various methods and collection of data for mapping and classwork in office computations, topographic, mapping and lettering.

Text: Tracy's Plane Surveying. Lectures, field, and office work.

Nine credit hours, summer term following first year.

**Forest Engineering VI (FEng VI); ROADS, TRAILS, AND BRIDGES.**—This course includes the principles and methods employed in the location and construction of forest trails, highways, logging roads, simple bridges, culverts, telephone lines, dams, wiers, and the selection and improvement of camp sites.

Prerequisite: Forest Engineering V.

Lectures and field work.

Second semester, credit 3 units.

**Forest Engineering VII (FEng VII); TOPOGRAPHIC SURVEYING AND LOGGING ENGINEERING.**—Principles of topographic surveying by the use of various instruments, particularly the stadia and plane-table. Triangulation; earthwork computation; determination of a meridian. The preparation of a topographic map of a large forest area.

Survey and construction of logging roads and railroads and other projects connected with the lumber industry. A large lumber concession will be visited in connection with this course and, if possible, all the field work will be carried out on this area.

Prerequisites: Forest Engineering V and VI.

Lectures, field, and office work.

Fifteen credit hours, summer term following second year.

#### FOREST MANAGEMENT

**Forest Management I (FMng I); FOREST MENSURATION.**—Instruction is given in the determination of the contents of logs, trees, and stands; valuation surveys and timber estimates; preparation of volume tables and principles of scaling and grading.

Lectures and field work.

First semester, credit 2 units.

**Forest Management II (FMng II); FOREST ORGANIZATION.**—Lectures on the principles of forest management including division and allotment of areas, determination of yield, and preparation of working plans in order to awaken an interest in the subject.

Second semester, credit 2 units.

**Forest Management III (FMng III); FOREST MENSURATION.**—Determination of the contents and growth of trees and stands. Construction of volume and taper tables. Commercial timber estimating with special reference to large forest tracts. Methods of obtaining the growth of stands and the construction of yield tables for various commercial trees in the tropics.

Text: Chapman's Forest Mensuration.

Lectures, field, and office work.

First semester, credit 3 units.

**Forest Management IV (FMng IV); FOREST FINANCE.**—Compound interest and financial calculations as applied to forest investments; determination of values, income and profits, and appraisal of damage to timber.

Prerequisite: Forest Management II.

Text: Schlich's Manual of Forestry, Vol. III.

Lectures and office work.

Second semester, credit 2 units.

**Forest Management V (FMng V); FOREST ORGANIZATION.**—The organization of forest properties for management including determination of increment, rotation, and growing stock; methods of allotting the forest area and of regulating the yield with special reference to tropical forests.

Prerequisite: Forest Management IV.

Text: Schlich's Manual of Forestry, Vol. III.

Lectures and field work.

First semester, credit 3 units.

**Forest Management VI (FMng VI); WORKING PLANS.**—The collection of data for the formulation of a complete working plan for a tract of forest land. This includes surveys, timber estimates, preparation of volume and yield tables, forest descriptions and map construction, and calculation and regulation of the future yield.

The preparation of a working plan for a definite forest area is a requirement.

Prerequisite: Forest Management V.

Text: Recknagel's Theory and Practice of Working Plans.

Lectures and field work.

Second semester, 3 units.

#### FOREST UTILIZATION

**Forest Utilization I (FUltz I); LOGGING.**—The course includes the following: organization of logging operation, camps; methods of felling, skidding, loading, transporting, and unloading logs and other forest produce. Comparison of power and animal logging with special reference to the tropics.

Lectures and field work.

Text: Bryant's Logging.

First semester, credit 5 units.

**Forest Utilization II; (FUltz II); SAWMILLING.**—A complete study of the methods of lumber manufacture including sawing, edging, trimming, sorting, and storing; equipment of portable and stationary mills; kiln and yard drying; loading, shipment, and sale of lumber; scaling and grading; stumpage appraisal; minor wood-working industries.

Lectures and field work.

Text: Bryant's Lumber Manufacture and Distribution.

Second semester, credit 5 units.

**Forest Utilization III (FUltz III); MINOR FOREST PRODUCTS.**—Methods of extraction, conversion, and use of minor forest products such as charcoal, rattans, dyewoods, oils, gums, resins, etc.

Prerequisites: Chemistry I and III.

Second semester, credit 3 units.

#### FOREST POLICY AND HISTORY

**FOREST POLICY AND HISTORY.**—The relation and attitude of the Government to forestry, both public and private. The forest policy of the United States, European countries, and tropical countries with special reference to the Orient. Development of a Philippine forest policy.

The history of forestry in European countries, America, and the tropics, and its application to the Philippine conditions.

Lectures, discussion, and assigned reading.

Text: Farnow's History of Forestry.

Second semester, credit 2 units.

### FOREST ECONOMICS

*FOREST ECONOMICS*.—A study of forest problems, conditions, and influences from an economic standpoint with special reference to the tropics.

Lectures, discussion, and assigned readings.

Text: Farnow's Economics of Forestry.

First semester, credit 2 units.

### FOREST ADMINISTRATION

Forest administration I (FAdm I); *FOREST ADMINISTRATION*.—This course will prepare the student for work in the Bureau of Forestry. It will consist in studies of forest laws and regulations, office and field procedure, and the organization and administration of field and office force.

Lectures and field work.

Forest administration II (FAdm II); *GENERAL FOREST ADMINISTRATION*.—Methods of handling large forest properties with special reference to national and state forests. Organization of forest forces in the United States, European, and tropical countries. Inventory of resources, records, accounts, and legal procedure necessary to handle the forest business. This course will also deal with special problems arising in the administration of the Bureau of Forestry in the Philippine Islands such as land classification, disposal of timber, grazing, special uses, and trespass.

Lectures and recitations.

First semester, credit 2 units.

### SEMINAR

*SEMINAR*.—Discussion of important problems and topics relating to forestry and allied subjects. Review of current forestry literature. Open only to third-year students in the degree course.

Both semesters, credit 1 unit a semester.

### FOREST INVESTIGATION

*FOREST INVESTIGATION*.—This course enables the student to specialize in some forestry work. Individual advanced study and research is given in such subjects as silviculture, management, engineering, utilization, technology, etc.

Open only to third-year students in the degree course.

Both semesters, credit 5 units a semester.

### WOODSMANSHIP AND MILITARY SCIENCE

*WOODSMANSHIP AND MILITARY SCIENCE*.—Three hours weekly will be devoted to purely military subjects. The balance of the time will be occupied by training in first aid and sanitation, swimming and woodsmanship. Required of all students.

No credit, both semesters.



## The Conservatory of Music

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### OFFICERS OF ADMINISTRATION

*President of the University:* Dr. RAFAEL PALMA

*Director of the Conservatory:* Dr. ALEXANDER LIPPAY

*Acting Secretary:* Mr. ZOSIMO Q. QUEVEDO

*Chief Clerk:* JOSE AGUINALDO

### BUSINESS DIRECTORY

**OFFICE OF THE DIRECTOR:** The office of the Director in a building located at the corner of Nebraska and Isaac Peral Streets, Ermita, Manila.

**TELEPHONE CONNECTION:** Telephone No. 2566.

**CORRESPONDENCE:** Address all correspondence to the Director of the Conservatory of Music, University of the Philippines, Manila, P. I.

## FACULTY OF INSTRUCTION

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**BONIFACIO ABDON,**  
Instructor in Violin.

**NICANOR ABELARDO,**  
Instructor in Music Theory.

**JUSTINA B. ARELLANO,**  
Assistant Instructor in Voice Culture.

**FELIX BASCON,**  
Instructor in Clarinet.

**RAMON L. CORPUS,**  
Special Instructor in Violin.

**WLADIMIR ELIN,**  
Assistant Professor in Voice Culture.

**LIBERATO ESGUERRA,**  
Instructor in Flute.

**JULIO ESTEBAN,**  
Instructor in Piano.

**LUCIA FRANCISCO,**  
Instructor in Piano.<sup>1</sup>

**EMILIA S. DE GUZMAN,**  
Instructor in Piano.

**RAFAEL HERRMANN, Ph.D.,**  
Instructor in Violin.

**CONCHITA CRUZ HERRERA,**  
Instructor in Piano.

**PRIMO INOCENCIO,**  
Instructor in Slide Trombone.

**CAYETANO JACOBE,**  
Instructor in Violin.

**VICTORINA LOBREGAT,**  
Instructor in Piano.

**ROSARIO LOPEZ,**  
Instructor in Piano.

**ELISA MAFFEI,**  
Instructor in Piano.

**SERAFIN MAGRACIA,**  
Instructor in Piano.

**ANTONIO J. MOLINA,**  
Instructor in Music Theory.

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<sup>1</sup> On leave.

**FELIPE MARIN,**

Instructor in Violincello.

**BASILIO MENDOZA,**

Instructor in Oboe.

**ALEJANDRO ORELLANO,**

Assistant Instructor in Violin.

**ROSA PINON,**

Assistant Instructor in Voice Culture.

**FRANCISCO SANTIAGO, Master of Music, Doctor in Mus.,**

Assistant Professor in Piano.

## **ESTABLISHMENT AND AIM OF THE CONSERVATORY**

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This department was established by an Act of the Third Philippine Legislature, enacted February 4, 1916, which appropriated a certain sum of money for the establishment and maintenance of a Conservatory of Music. The doors were opened in September, 1916, with a teaching Staff of six instructors and Director, and an enrollment which reached one hundred and four by the end of the school year. Since that time the Conservatory has grown in Faculty, enrollment, and equipment so that in the past few years it has been taxed to its fullest capacity. The various courses have been added to and strengthened year by year until they have come up to the high standard of other schools of like character.

It is the aim of the Conservatory of Music to become the fountain head of music culture in the Islands as well as in the immediate community. It proposes to encourage, educate, train, and to send out students well grounded in technique, art, knowledge, and experience, who will carry with them inspiration and culture to all parts of the Archipelago. It is also the aim of the Conservatory to set up and maintain a standard of proficiency equal to any like institution in America or Europe, and to create an atmosphere worthy of the inherent musical nature of the Filipino people.

### **CHANGES IN CURRICULA**

Owing to the reorganization of the Conservatory of Music, which was not completed in time for the changes in curricula to be printed in the current catalogue, the old curricula are printed. Students and prospective students should therefore apply to the Director of the Conservatory for information concerning the curricula now in force.

### **COURSES OF INSTRUCTION**

The curriculum is so arranged that all students of the regular courses for graduation may take, step by step, the various studies which are necessary to a professional career, whether as players, singers, leaders, or teachers.

After the Preparatory work the Conservatory offers three courses. The first leads to graduation with the Teachers Diploma. The other courses lead to the Soloists Diploma, and the Post-Graduate Diploma. Those who are not following any of these courses are classified as Special students.

### **THE PREPARATORY COURSE**

In order that students desiring to enter the regular courses in the Conservatory may be properly prepared to do that work in the specified

time, a Preparatory, or Sub-Conservatory course, is being offered. No previous knowledge of music will be required of those taking up this work, but only those students who show interest, aptitude, and sufficient mental and technical development will be allowed to join the classes in Harmony I and Normal Music.

The length of time required to complete this course will depend entirely upon the natural ability of the pupil; the average pupil can finish it in one year; others may require more time, while a comparatively advanced student can do it in less time. No student will be classified as of full Conservatory standing until he has passed every requirement of this course. It will be required of every one expecting to graduate in any department of the Conservatory.

Examinations, given by a committee of three faculty members, will be required in Major Scales; all Minor Scales in three forms; arpeggios of the Dominant and the Diminished Seventh Chords; Czerny Piano Studies, Op. 599, or 139; Heller Studies; Nevin's Suite, "A Day in Venice"; and "In Distant Lands" by Gena Branscombe. Students in the Voice-course will be allowed to play several song accompaniments instead of the Nevin and the Branscombe Suite and students of Violin may take examination in Viola and the Cello in place of the same piano suites.

Besides the work required in Piano, a class in Harmony I will be required for one year. The textbook is "First Essentials of Harmony" by R. L. Schofield. A class in Normal Music is also a part of the requirements.

## REGULAR CONSERVATORY COURSES

### PIANOFORTE

While it is possible, and often advisable, for a student to pursue work in this course while finishing up the Preparatory course, yet he may not be classified in Division One until he has completed his examinations in the preceding requirements.

This work furnishes the necessary requirements for entrance into professional life, although it is not restricted to studies having such an end in view. The required time for the average student to complete the Conservatory course should be four years, but much will depend upon the student himself; his preparation, the time he has at his disposal, his natural ability and talent, etc.

### PIANOFORTE—DIVISION ONE

Philip—Exercises for Independence of Fingers.

Mendelssohn—Songs without Words.

Moscheles—Etudes, Op. 70.

Bach—Two- and Three-Part Inventions.

Nevin—Any four pieces.

Torjussen—Norwegian Suite.

### CLASS WORK

Harmony II—S. Emery.

Normal Music II.

Ensemble Playing.

**PIANOFORTE—DIVISION TWO**

Clementi-Tausing—Gradus Ad Parnassum.  
 Kullak,—Octave Studies.  
 Cramer—Fifty Etudes.  
 Mozart—Three Sonatas.  
 MacDowell—Woodland Sketches.  
 Pieces by Schubert, Mendelssohn, and Rubenstein, or Grieg.

**CLASS WORK**

Harmony III—Chadwick.  
 Dictation and Ear Training.  
 Ensemble Playing.  
 Chorus or Orchestra.

**PIANOFORTE—DIVISION THREE**

Pischna—Progressive Studies.  
 Schubert—Two Sonatas.  
 Kullak—Octave School.  
 Bach—French Suites.  
 Beethoven—Four Sonatas.  
 Pieces by Schumann Liszt.  
 Cadman—Thunderbird Suite.

**CLASS WORK**

Counterpoint—Prout.  
 History of Music—Baltzell.  
 Transposition and Score reading.  
 Theory—Louis C. Elson.

**PIANOFORTE—DIVISION FOUR**

Bach—Preludes and Fugues.  
 Chopin—Studies.  
 Beethoven—Sonatas, Vol. II.  
 Borodin—Russian Suite.  
 Piano Graduation Recital.  
 Complete Concerto.

**CLASS WORK**

Practice Teaching.  
 Interpretation.  
 Music Forms.  
 History of Music.  
 Chorus or Orchestra.

**VOICE CULTURE**

In breath control, voice-placing and building, only the best and most approved methods are used. These follow the lines laid down by the old Italian masters of singing. Much attention is given to interpretation as well as to vocal technics. The regular course in Voice is constructed so as to fit the pupil for a career as soloist or teacher and the theoretical studies

should be supplemented by a thorough study of English. Good English diction is very important in this course, and a student who is unable to sing this language correctly will not be encouraged to take up others. Class work will be the same in Voice culture as that required in Pianoforte, with the following exceptions: The vocal students are not required to take Ensemble Playing, Score Reading, or Transposition.

## VOICE CULTURE COURSE

### PREPARATORY

- Breathing and Tone Placing.
- Simple Vocal Exercises.
- Sieber—Eight-Measure Studies.
- Sieber—Vocalises. Op. 45.
- Group One (Small songs in English).
- Three Duets.
- Two Trios.
- Piano—Minor Scales.
- Piano—Dominant Seventh Arpeggios.
- Piano—Studies, Book 1, Op. 599, Czerny.

### DIVISION ONE

- Vaccai—Vocalises.
- Group Two (Small Schubert Songs).
- Marchesi—Vocalises. Op. 15.
- Group Three (Italian Songs).
- Piano—Minor Scales.
- Piano—Diminished Seventh Arpeggios.
- Piano—Studies. Book 2, Czerny.

### DIVISION TWO

- Concone—Vocalises. Op. 17, or Op. 10.
- Panofka—Scale Studies. Op. 81, Book I or
- Marchesi—Scale Studies. Op. 2.
- Group Four (Small Oratorio Arias).
- Group Five (Modern American Songs).
- Group Six (French Songs).
- Piano—Heller Studies. Op. 47, or
- Nevin, A Day in Venice.
- Piano—Song Accompaniments.

### DIVISION THREE

- Panofka—Scale Studies. Op. 81, Book 2.
- Song Cycle.
- Two duets from Opera or Oratorio.
- Group Eight (Old English Songs).
- Group Nine (Schubert and Schumann).
- Group Ten (Italian Anthology).
- Two Trios from Opera or Oratorio.
- Group Eleven (Scandinavian Songs).
- Piano—Song accompaniments.

**DIVISION FOUR**

- Group Twelve (Classic Oratorio Arias).
- Group Thirteen (Modern Oratorio).
- Group Fourteen (Modern American and English Songs).
- Group Fifteen (Recitative).
- Group Sixteen (Russian Songs).
- Group Seventeen (Opera Arias).
- Two Quartettes from Opera or Oratorio.
- Song Recital.

**NOTE.**—It will be found necessary for the instructor to substitute some other works for those mentioned in order to accomodate the different kinds of voices. The above course is made out with the soprano voice in mind.

**VIOLIN**

The future success of a violinist depends, in large measure, upon the start he has received. We give much attention to the correct position, intonation, and bowing. Students of violin, when sufficiently advanced, will receive much benefit from attending classes in Trio, and Quartette playing as well as the Conservatory Orchestra. Some knowledge of the Viola and the Cello are also required in this course. The class work in the Violin course is the same as that required for Piano with the following exceptions: The violin student is not required to take Transposition and Score Reading, and but one Semester of Ensemble.

**VIOLIN—PREPARATORY**

- Position and Bowing.
- Alard—Violin Method. Book I, or
- De Beriot—Method. Books I and II.
- Sevcek-Semitone System.
- Wohlfahrt—Etudes Book I.
- Sitt—Etudes Book I.
- Piano—Major Scales.
- Dominant Seventh Chords.
- Czerny. Op. 599, Book I.

**DIVISION ONE**

- Group Two (Selections).
- Kayser—Etudes. Op. 20 (Complete).
- Wohlfahrt—Etudes. Book II, or
- Rios—Etudes. Op. 28.
- Mazas—Etudes. Book I, or
- Alard—Method. Second and Third Positions.
- Piano—Minor Scales.
- Diminished Seventh Chords.
- Czerny—Op. 599, Book II.

**DIVISION TWO**

- Mazas—Etudes. Book II, or
- Sitt—Etudes. Book III.
- Kreutzer—Etudes.

*Division Two—Continued*

Schradiet—Scale Studies.  
 Sevcek—School of Bowing. Book I.  
 Trio for Piano and Strings.  
 Piano—Heller Etudes. Op. 47.  
 Nevin, A Day in Venice, or  
 Four Accompaniments.

**DIVISION THREE**

Schubert's—Sonatas. Op. 137.  
 Fiorillo—Etudes.  
 Dont—Etudes. Book III.  
 Sevcek—School of Bowing.  
 Sevcek—School of Technics. Book II.  
 Dulow—Exercises in Spicato and Staccato.  
 Group—Four (Selections).

**DIVISION FOUR**

Sonatas of Mozart, Beethoven, etc.  
 Group Four.  
 Gairnies—Etudes.  
 Danclo—Brilliant Etudes. Op. 73.  
 Sevcek—School of Technics. Books II and III.  
 Complete Concert.  
 Violin Recital.  
 One Ensemble number.

**SCIENCE AND COMPOSITION**

The work in the Science and Composition of music is given in classes which are arranged at the time which is the most convenient for the members of the class. All regular students of the Conservatory are required to take this work and to attend classes regularly. A passing grade of 75 per cent will entitle the student to credit in that subject and promotion. Classes are held two hours weekly and only those who have passed the Preparatory examinations in Harmony I and Solfeggio will be allowed to enroll for this work.

While most of this work is required of those graduating in Piano, Voice-culture, or Violin, a Diploma in Science and Composition will be awarded to those who complete all of this course. This work is especially important to a professional musician as well as to the prospective composer. All of this work is also required of those who wish to prepare for a Bachelor of Music degree from a University. Students of Voice-Culture and violin are not, at present, required to take Transposition and Score reading.

**COMPOSITION—FIRST DIVISION**

Harmony II—S. Emery.  
 Solfeggio 2.  
 Piano—Mendelssohn Songs without Words.  
 Piano—Bach Inventions.  
 Ensemble Playing.

**THE CONSERVATORY OF MUSIC****COMPOSITION—SECOND DIVISION**

Harmony III—(Chadwick)  
Dictation and Ear training.  
Ensemble Playing.  
Piano—Mozart Sonatas.  
Chorus or Orchestra.

**COMPOSITION—THIRD DIVISION**

Counterpoint (Prout).  
Music Forms.  
Composition.  
History of Music 1.  
Transposition and Score Reading.  
Theory (Elson).  
Piano—Beethoven Sonatas.

**COMPOSITION—FOURTH DIVISION**

Interpretation.  
Double Counterpoint (Prout).  
Orchestration.  
History of Music 2.  
Practice Teaching.  
Chorus or Orchestra.  
Recital of Original Works.

**SOLOISTS' COURSE**

Graduates of the regular Teachers' Course, any department, may matriculate in either of the Post-graduate courses. The Soloists' Course is intended to give the student an opportunity for specializing in one subject and becoming a more artistic player or singer. It is also necessary to those who wish to become familiar with the larger works and for those who intend to take more advanced teaching. Not less than two years should be given to this work. The Director and the Faculty of the Conservatory will jointly decide the length of time for each student. Recital experience is a large part of this work. No class work will be required.

**POST-GRADUATE COURSE**

This work includes practically all of the work in the Soloists' Course together with all of the work in the Composition Course. While recital experience is required, it will not be carried to any great extent. All who are preparing for the Bachelor of Music Degree should make a thorough study of this work.

**EXAMINATIONS AND ENTRANCE**

At present entrance examinations are required of those wishing to matriculate in the Conservatory. Upon the commencement of the work the student will be given the work of the Division to which he properly belongs. All students who enter the Conservatory should have a good working knowledge of the English language. Occasional tests will be given

throughout the year with final examinations at the end of each semester. By recommendation from the Instructor, a committee will give examinations during the Semester in applied music. Regular examinations come in the months of October and March. A careful record of each student is kept, which, together with the examination, determines the final grade of the pupil. A student's fitness for a promotion and graduation is largely governed by these records. Students whose average falls below sixty are not allowed to matriculate again unless upon satisfactory guarantee that much better work will be done.

Credit may be given for any work done in any conservatory of Music of good standing outside of the Philippines and those other conservatories in the Philippines duly recognized by the Government and authorized to grant diplomas in music by the Secretary of Public Instruction.

No extension work of the University of the Philippines shall be authorized hereafter and no examinations shall be conducted in any private school by either the director or any person connected with the Conservatory with the view of obtaining credit for work done outside the Conservatory.

Examinations for entrance, promotions, and graduation shall be given by a committee appointed by the head of the department with the approval of the director, and said committee shall pass upon the merits of the candidates by majority votes.

All those who decide to enroll in the Conservatory must pay the matriculation fee.

### RECITALS

Private, studio recitals and public recitals and concerts are held throughout the school year. All students are expected to attend. These give the necessary experience in concentration and playing before an audience. Individual Graduation recitals are required of all before the diploma is received. More recitals are required of the Post-Graduate students.

Occasional concerts by the Conservatory Faculty and others are given for the benefit of the students and their friends. The final concert of the school year, the commencement, will be given by the members of the graduating class with the assistance of the Conservatory Orchestra. Students in all grades are urged to attend all Conservatory concerts as well as those of visiting artists who come to Manila.

### CREDIT FOR OUTSIDE WORK

No credit shall be given for any work done outside of the Conservatory except in the sub-conservatory or preparatory courses. Students who have had previous preparation in advanced music must enroll only in the first year and take examination in the subjects thereof as soon as they are ready and given credit if so entitled and promoted accordingly, and take again examinations in the subjects of other years subject to the same regulations, provided, however, that no diploma shall be given to any student in the conservatory unless he shall have done resident work, studying not only the theoretical subjects but the instrument in which he has specialized for a period of not less than two years.

That after the next academic year no credit shall be given to any extension work done outside of the Conservatory except as authorized by the existing rules; namely, in the Sub-Conservatory courses.

**FINAL EXAMINATIONS FOR GRADUATION**

Before graduating a student in the Conservatory and before giving a public rehearsal, the candidate must submit to final test before a committee representing every department of the Conservatory. Said committee must be appointed by the Director with the approval of the President, and shall be composed of no less than five members. The Committee must determine the exercises which must be played by the candidate as well as other matters in which he needs to be examined. If the candidate is found competent to receive a degree from the Conservatory, the program for his rehearsal must also be submitted for approval of the committee to which he might have been assigned.

The committee appointed shall serve for one semester only.

**ASSIGNMENT OF PUPILS TO TEACHERS**

It is a privilege of the pupils upon entering the Conservatory to choose their own teachers in their major studies from the members of the department where he belongs, and it shall be the duty of the Secretary of the Conservatory to ascertain said choice at the time of the enrollment of the pupils. Said students must indicate their first and second choice in the admission card provided for that purpose by the Secretary.

**SECONDARY PIANO**

All pupils of the Conservatory who are pursuing any regular Teacher's Course are required to take Piano as a secondary study.

Pupils required to take Secondary Piano for their graduation should be assigned to student teachers who shall be appointed by the Director of the Conservatory with the recommendation of the head of the department of Piano in the Conservatory. Said special teacher shall receive a special compensation at a rate to be fixed by the President.

Pupils who have finished the required amount of work in the Secondary Piano Course shall not be allowed to continue the study of Piano without paying an additional tuition fee for that course. This course is primarily for prospective graduates in Voice culture, Violin and the Science of Music courses.

**OUTSIDE STUDIES**

Pupils from the Conservatory may be ordered to discontinue their studies with other teachers in case such instruction interferes and appears to be detrimental to his advancement in the Conservatory but before such prohibition may be enforced the recommendation of the department concerned must be secured as well as the approval of the President.

**LIMITATION OF OUTSIDE ACTIVITIES OF A STUDENT**

No student from the Conservatory shall be allowed to take any part in any public concert without written permission from his teacher and the Committee in charge thereof in the Conservatory. There shall be a committee of five members representing the different departments of the Conservatory to pass upon the qualifications of students who are to take part in a public concert as well as upon the preparation and execution of the piece to be played by the pupil.

## DEPARTMENTS

The Conservatory of Music shall have the following departments: Piano; Violin; Voice and Science and Composition. There shall be appointed by the President with the approval of the Board a head of each one of the above mentioned departments who shall be responsible to the Director for the administration thereof and for carrying out all the policies affecting the same. The head of the department shall be ex-officio member of every committee.

## DEAN OF WOMEN

There shall be appointed by the Board of Regents with the recommendation of the President, a Dean of Women who shall take charge of all the students in the Conservatory regardless of sex and enforce such rules of discipline as may be promulgated by the President of the University.

## ENSEMBLE MUSIC

The Conservatory supports a good-sized orchestra which gives players of orchestra instruments practice in ensemble playing. The orchestra is a great help, also, in playing the accompaniments for the concertos and arias of the advanced pupils. Much work is also done in piano four and eight hands and piano with strings. This work gives the student an opportunity of studying the larger works in composition such as the Symphonies and Operatic Overtures of the great masters. A chorus class is offered which studies the larger works for voices. Records are kept and credits given in this work.

## FEES

In order to matriculate in the Conservatory the student must come first to the Conservatory Office and fill out the necessary papers. The matriculation fee will be paid at the University on Padre Faura. The tuition fee for all regular students is ₩25 per semester. This entitles the student to private lessons in applied music and two classes. A fine of ₩5 is charged from those who fail to matriculate before the commencement of classes. A fee of ₩5 is charged for the Diploma. The fee for use of Library books and music is ₩2.50. Books and music used by the students are to be purchased by them with the exception of those used in ensemble music. The latter may be secured in the Conservatory library.



## **The School of Fine Arts**

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### **ADMINISTRATIVE OFFICERS**

*President of the University:* Dr. RAFAEL PALMA

*Director:* Mr. RAFAEL ENRIQUEZ

*Secretary:* Dr. TORIBIO HERRERA

### **BUSINESS DIRECTORY**

**OFFICE OF THE DIRECTOR:** The office of the Director is located at No. 931 Calle R. Hidalgo, Quiapo.

**TELEPHONE CONNECTION:** Telephone No. 1458.

**CORRESPONDENCE:** Address all correspondence to the Director, School of Fine Arts, University of the Philippines, Manila, P. I.

## **FACULTY OF INSTRUCTION**

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**RAFAEL ENRIQUEZ, LL.L.**,

Director of the School of Fine Arts and Assistant Professor of Color and Composition.

**TORIBIO HERRERA, M.D.,**

Secretary of the School of Fine Arts and Instructor in the History of Art.

**FERNANDO C. AMORSOLO,**

Instructor in Landscape and Drawing from Life.

**AMBROSIO MORALES,**

Instructor in Engraving.

**VICENTE FRANCISCO,**

Instructor in Sculpture and Molding.

**VICENTE RIVERA Y MIR,**

Instructor in Drawing.

**FABIAN DE LA ROSA,**

Instructor in Decorative Art.

**TEODORO BUENAVENTURA,**

Instructor in Elementary Drawing.

**RAMON PERALTA,**

Instructor in Elementary Drawing.

# **THE SCHOOL OF FINE ARTS**

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## **HISTORY**

The School of Fine Arts was established by authority of Act No. 1870, founding the University of the Philippines which was enacted by the First Philippine Legislature on June 18, 1908. The first session of this school began in June, 1909. The building is situated at No. 931 Calle R. Hidalgo in Quiapo district of the City of Manila.

## **OBJECT**

The School of Fine Arts has as its chief object the teaching and development of the graphic and plastic arts in their various and manifold branches. An effort is made also to exert an influence toward the advancement and refinement of those industrial trades which are of an artistic nature; as, gold and silver work, ceramics, embroidery, lace-making, furniture making, and metal work.

## **INSTRUCTION**

The School offers courses of instruction in Illustration, Cartooning and Commercial Designing, Painting, Sculpture, and Engraving.

## **REQUIREMENTS FOR ADMISSION**

Applicants are admitted in the School of Fine Arts on the following bases:

1. They are required to present Bureau of Education form No. 137, or similar forms of recognized private schools showing completion of the various intermediate school courses prescribed by the Bureau of Education of the Philippine Islands or equivalent courses in foreign schools.

2. By competitive examinations as vacancies occur. In the regular courses, excepting those of theoretical nature, thirty to forty students shall be the maximum number to be enrolled. A limited number of elementary students who show marked proficiency in drawing are admitted.

For further particulars apply to the Director, School of Fine Arts, University of the Philippines.

## **REQUIREMENTS FOR GRADUATION**

Those pupils who complete satisfactorily the work as outlined for the courses in Illustration, Cartooning and Commercial Designing, Painting, Sculpture, and Engraving, and who can present certificate of having satisfactorily completed the second year courses required in public high schools, or its equivalent.

## **TUITION FEES AND OTHER EXPENSES**

For Preparatory Course: ₱2 per semester—Tuition plus other expenses that may be imposed by the Board of Regents.

For Principal Courses: \$10 per semester—Tuition plus other expenses that may be imposed by the Board of Regents.

Furniture absolutely necessary for the work is provided by the School; but instruments and all other materials for work—books, papers, pigments, canvas, etc.—must be provided at the student's own expense.

### ATTENDANCE

Promptness and regularity of attendance are required in all day and evening classes. Each student is expected to conduct himself at all times, both in and out of the classroom, with honor to himself and to his fellow students, and to the School of Fine Arts. Each student upon entering the School assumes the obligation to meet these requirements.

Student membership will be withdrawn from any one who does not prove to be industrious, and who fails in the common courtesies necessary for the harmonious conduct of the work of the School.

### EXAMINATIONS AND PRIZES

Three days before the close of the school year there will be an exhibition of the work done by the pupils which, in the opinion of the instructors of this school, deserves to be exhibited. Prizes will be awarded, and the qualifications of each pupil will be determined by various committees of instructors appointed for this purpose. Each committee is composed of the instructor of the class the work of which is to be judged, and two others who are appointed to assist him with their advice; these boards determine the qualifications and award the prizes. In each class there will be given as prizes a bronze medal with appropriate diploma, and two certificates of honorable mention. In addition, a certificate of merit is given, in lieu of the medal, to any pupil who has previously been awarded a medal in the same class; provided that the character of his work again deserves this distinction.

### FINAL DISPOSITION OF THE WORK OF STUDENTS

All work for which the pupils are awarded prizes shall become the property of the School. The rest of the work of the students done during the academic year and adjudged by the faculty as deserving of special merit, with the consent of the owners, shall be offered for sale to the public in general at prices fixed by the students and the faculty. From the proceeds of the sales, 50 per cent shall be retained by the University to be applied to the acquisition of more equipment for the School, the rest to be given to the owners of the work.

### RECORDS AND PROMOTIONS

At the end of each semester the completed work of each student is reviewed and graded by the Professor in charge and a record of this review will be kept on file. A report of the grades of each student will be issued, at the end of the school year, by the Secretary of the University in accordance with the existing regulations.

Promotions are made at the end of each academic year upon completion of the required work.

## ORGANIZATION OF COURSES

The entire course of instruction is arranged for four years in Illustration, Cartooning and Commercial Designing and five years in Painting, Sculpture, and Engraving. In each department, the required course is divided into two parts, preparatory and principal courses.

The Preparatory Course covers one year and shall be common for the four branches. That is, the student must satisfy his instructor with his work in Elementary Drawing which is a prerequisite for his admittance to any of the principal courses.

The course in Elementary Drawing will comprise chiefly charcoal practice of figures, landscape, animals, ornaments and bass and high reliefs. The work is intended to familiarize the student with the technique of making drawing from life.

The classes are conducted under the "Atelier and Concours system"; that is, the instruction is given in groups under the particular instructor. The "Atelier system" may include one or several classes; each one of which is limited in number, life classes with 20 to 35 students.

In the Regular Courses, there are three life-classes in Painting; one in Engraving; one in Sculpture; etc. in actual session. The students are carried through the work on the head, costumes, and the nude; the work ranging from early charcoal practice of academic studies from the nude to advanced executions in painting, modeling and composition. The scientific and artistic study of figures is fully provided for.

## DESCRIPTION OF COURSES

1. *ELEMENTARY DRAWING*.—This course is required of all preparatory students. The work is divided into two parts: (1) at the beginning, the students are asked to make crayon or charcoal outline and shaded drawings of printed models of the human head or of fragments of the human figure, and later, water-color drawings of printed models of landscape, plants and animal life; (2) in the second part of the course, crayon or charcoal drawings from cast models of ornaments in high and bass-relief, are required.

Preparatory Year, Messrs. PERALTA and MORALES.

2. *DRAWING FROM ANTIQUE STATUARY I*.—This course aims to train the pupils to appreciate lines of proportion, values of light and shade and the principles of free-hand perspective. The required work, includes charcoal or crayon drawings of cast models from antique statuary.

First year, *Illustration, Cartooning and Commercial Designing; Painting; Sculpture and Engraving*.

Mr. BUENAVENTURA.

10 hours a week, second semester.

3. *DRAWING FROM ANTIQUE STATUARY II*.—This course is designed to train the students in the combination of colors and preliminary tints. The required work consists of oil paintings from cast models of antique statuary.

First year, *Painting*.

Mr. BUENAVENTURA.

10 hours a week, second semester.

**4. ELEMENTARY DECORATIVE PAINTING I.**—The work is designed to teach the students to make crayon, charcoal and water color drawings of plants, animal life, the various style of ornaments used in the past and at present and decorative compositions for textiles, block-printing, and copies of prints of perspective painting. The course must be preceded by Elementary Drawing, and it may be taken at the same time as Drawing from Antique Statuary I.

First year, *Illustration, Cartooning and Commercial Designing; and Painting.*

Mr. DE LA ROSA.

10 hours a week, second semester.

**5. ELEMENTARY DECORATIVE PAINTING II.**—This course is a continuation of Elementary Decorative Painting I. It deals with the study of the human figure with or without drapery, more or less modified to suit harmonious combinations for correct and pleasing design. Materials: oil, tempera and water color.

Second year in *Painting.*

Mr. DE LA ROSA.

10 hours a week, second semester.

**6. PERSPECTIVE.**—This course is intended to train the pupils in the application of the rules of lineal and serial perspectives. The work is theoretical and practical. The students are required to make copies from the best buildings and streets of the city.

First year, *Illustration, Cartooning and Commercial Designing; Painting; Sculpture and Engraving.*

Dr. HERRERA.

2 hours a week, second semester.

**7. HISTORY OF ART.**—The course consists of lectures on the history of painting, sculpture, and engraving including the evolution of drapery from ancient times to the present. Special emphasis is given to modern painting, sculpture, and engraving.

First year, *Illustration, Cartooning and Commercial Designing; painting; Sculpture and Engraving.*

Dr. HERRERA.

2 hours a week, second semester.

**8. DRAWING FROM LIVING MODELS.**—This course includes pen and ink, pastel, tempera, water color and oil drawings and paintings of the human figure in application to cartooning, illustration and commercial designing.

First year, *Illustration, Cartooning and Commercial Designing.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

**9. DRAWING FROM LIFE I.**—This course is a continuation of Drawing from Antique Statuary I. It trains the student to appreciate actual life and to depict it in his work. Charcoal and crayon drawings from living nude or costumed models are required.

Second year, *Illustration, Cartooning and Commercial Designing; Painting; Sculpture and Engraving.*

Mr. PERALTA.

10 hours a week, second semester.

10. *DRAWING FROM LIFE II.*—Crayon and charcoal drawings are made from living models in groups of two or more persons with appropriate surroundings to make harmonic compositions.

Third year, *Illustration, Cartooning and Commercial Designing; Painting; Sculpture and Engraving.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

11. *DRAWING FROM LIFE III.*—This class is combined with the above, but the students use pen and ink, pastel, water color and oil. In addition they are given prescribed exercises in sketching unposed figures.

Fourth year, *Painting, Sculpture and Engraving.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

12. *ADVANCED LANDSCAPE I.*—This class is conducted in the open air in localities selected by the instructors. The University furnishes transportation. The students are required to paint in oil appropriate sectors of given landscapes, emphasizing particularly the details of the layout.

Second year, *Illustration, Cartooning and Commercial Designing, and Painting.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

13. *ADVANCED LANDSCAPE II.*—Our varied tropical scenery with its beautiful lighting and sunsets, our picturesque coast-lines, our water falls, winding streams, etc., furnish such a wealth of material that one year would be insufficient for the students to master the technique of landscape composition. The course is therefore given in two years (landscape II and Landscape III).

The work in Landscape II consists mainly in oil or pastel paintings of selected landscapes designed especially to develop the individual technique and style of the student.

Third year, *Painting.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

14. *ADVANCED LANDSCAPE III.*—This course is a continuation of the above and the student is encouraged to combine composition with the landscape to obtain more harmonic scenes. The student's power of composition is specially encouraged.

Fourth year, *Painting.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

15. *CARTOONING.*—This class deals with cartooning in pencil, charcoal, pen and ink and wash, as applied to newspapers, magazines, advertising works, student activities, current events, and posters for advertising. Serial cartoons are developed and individual style is encouraged.

Second year, *Illustration, Cartooning and Commercial Designing.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

16. **ANATOMY.**—Theoretical and practical instruction in the science of anatomy, including lectures in Ethnology and Anthropology in their application to art.

Second year, *Illustration, Cartooning and Commercial Designing; Painting; Sculpture and Engraving.*

Dr. HERRERA.

10 hours a week, second semester.

17. **COLORING FROM LIFE I.**—The students are taught in this course to paint in oil from living models generally in the nude, but considered in fragments only.

Second year, *Painting.*

Mr. RIVERA.

10 hours a week, second semester.

18. **COLORING FROM LIFE II.**—Students paint in oil living models both nude and costumed, considered in fragments, single figures and in groups. This course is a continuation of Coloring from Life I.

Third year, *Illustration, Cartooning and Commercial Designing, and Painting.*

Mr. RIVERA.

10 hours a week, second semester.

19. **SKETCHES FROM UNPOSED SUBJECTS.**—In this class the model is posed in the open sun-light for half an hour or less. This is necessary to minimize the rapid changes of light. The life of any composition of figures lies in the movement of the model, which cannot be obtained with the necessary ease and naturalness unless the pose is of short duration; for this reason the model should be posed for not more than 15 minutes at a time.

Because of the need of rapidity in the work, this course is only open to students who have completed the courses of Drawing from Life. The work is specially designed to stimulate the development of rapid sketching and note taking of colors.

The students must paint in oil, pastel or water color living models in various poses.

Third year, *Illustration, Cartooning and Commercial Designing.*

Mr. F. AMORSOLO.

10 hours a week, second semester.

20. **ETCHING.**—Dry point copper plate etching and machine impression are taught in this class.

In the first half of the year, copies of classical works and etching from living figures, nude or costumed are studied and in the second semester compositions of local scenes or of figures.

Third year, *Illustration, Cartooning and Commercial Designing.*

Mr. MIRANDA.

10 hours a week, second semester.

21. **DECORATIVE COMPOSITION.**—The work of the class trains the students in composition of one or more figures combined with other deco-

rative objects. Also in historical composition, costumes, posters, diplomas, tapestry, etc.

Materials: Oil, tempera, pastels and water color.

Third year, *Painting*.

Mr. DE LA ROSA.

10 hours a week, second semester.

22. *SCENOGRAPHIC AND MURAL PAINTING*.—In this class only compositions of scenographic and Mural decorations are painted in oil and tempera.

Fourth year, *Painting*.

Mr. DE LA ROSA.

10 hours a week, second semester.

23. *COMPOSITION*.—This class trains the students in composition of typical scene of the country, selected by the pupils themselves, and historical episodes, assigned by the professor. The work is rendered in rough oil sketches.

Fourth year, *Painting*.

Mr. ENRIQUEZ.

10 hours a week, second semester.

24. *PORTRAIT*.—The work of this class is alternated with the class in Coloring from Life. The students are urged to portray the character of the model.

Fourth year, *Painting*.

Mr. ENRIQUEZ.

10 hours a week, second semester.

25. *ELEMENTARY MODÉLING OF ORNAMENTS*.—The students model in clay fragments from cast models of figures and ornaments.

First year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

26. *ELEMENTARY RELIEF MODELING OF FIGURES*.—The class is required to work in relief modeling from figures of Antique Statuary.

First year, *Sculpture*.

Mr. Francisco.

10 hours a week, second semester.

27. *ORNAMENTAL COMPOSITION*.—The students are required to model ornamental compositions in relief.

Second year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

28. *MODELING FROM STATUARY*.—This work consists in the modeling of copies from Antique Statuary in single figures.

Second year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

**29. MODELING FROM LIFE I.**—This work consists in clay modeling from the nude life or from costumed models.

Third year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

**30. MODELING FROM LIFE II.**—The students are required to make clay models in full round from life in the nude or costumed. The model is placed in the center of the class upon a rotary platform to enable the student to obtain a full view of the model without leaving his place.

Fourth year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

**31. MOLDING.**—The students in this class are taught to make plaster molds from their own finished works in clay.

Third year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

**32. COMPOSITION.**—Students are required to model in clay original compositions prescribed by the Instructor.

Fourth year, *Sculpture*.

Mr. FRANCISCO.

10 hours a week, second semester.

**33. WAX MODELING IN BAS-RELIEF.**—The work consists in wax copies in bas-relief of ornamental models furnished by the school.

First year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

**34. WAX MODELING IN RELIEF OF ORNAMENTAL COMPOSITION.**—The work is similar to the above, but the students are asked to make wax-models in bas-relief of original ornamental compositions.

Second year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

**35. WAX MODELING OF COPIES IN BAS-RELIEF.**—The students make bas-relief copies of figures furnished by the Professor.

Second year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

**36. MODELING FROM LIFE IN BAS-RELIEF.**—The class is required to model in wax in bas-relief from living models with or without drapery.

Third year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

**37. MODELING FROM LIFE IN GROUPS.**—The class models in wax bas-relief groups of living figures.

Fourth year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

38. *COMPOSITION IN BAS-RELIEF*.—The class models in wax in bas-relief original compositions of figures, ornaments or both.

Third year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

39. *COMPOSITION IN BRONZE IN BAS-RELIEF*.—The students in this class are required to make wax models of original compositions, obtain the cast of their finished models and finally copy their cast models in bas-relief in bronze.

Fourth year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

40. *BRONZE ENGRAVING IN BAS-RELIEF*.—The work consists in direct carving in bronze of copies of original cast models made by the students themselves for the purpose of making the negatives from which the positives may later be made.

Third year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

41. *PRACTICE IN MACHINERY*.—The course is intended to familiarize the students with the manufacture of models. The class is taught the technique of reducing their first models to the desired size.

Third year, *Engraving*.

Mr. MORALES.

10 hours a week, second semester.

# REORGANIZED SCHOOL OF FINE ARTS CURRICULUM

The plan of reorganization as herein proposed is to be applied only to students entering the School of Fine Arts at the opening of the academic year of 1926-1927. For the students enrolled prior to that period, the present curriculum and regulations shall apply.

## PREPARATORY YEAR<sup>1</sup>

*ELEMENTARY DRAWING*.—(Charcoal, crayon, and water-color drawings from printed models of figures, animals, plants, ornaments, and landscapes. Also drawings of high and bas-relief of cast models)

Messrs. PERALTA and MORALES.  
2 hours a week, second semester.

## COURSES IN ILLUSTRATION, CARTOONING, AND COMMERCIAL DESIGNING

### FIRST YEAR

*Drawing from Antique Statuary I*.—Mr. Buenaventura, 10 hours a week, second semester.

*Drapery and Still Life*.—Mr. Miranda, 5 hours a week, second semester.

*Elementary Decorative Painting I*.—Mr. F. de la Rosa, 10 hours a week, second semester.

*Perspective*.—Dr. Herrera, 2 hours a week, second semester.

*History of Art*.—Dr. Herrera, 3 hours a week, second semester.

*Drawing from living Models*.—Mr. F. Amorsolo, 10 hours a week, second semester.

### SECOND YEAR

*Drawing from Life I*.—Mr. Peralta, 10 hours a week, second semester.

*Advanced landscape Painting I*.—Mr. F. Amorsolo, 10 hours a week, second semester.

*Cartooning*.—Mr. F. Amorsolo, 10 hours a week, second semester.

*Anatomy*.—Dr. Herrera, 5 hours a week, second semester.

### THIRD YEAR

*Coloring from Life II*.—Mr. Rivera, 10 hours a week, second semester.

*Sketches from Unposed Subjects*.—Mr. Amorsolo, 10 hours a week, second semester.

*Drawing from Life II*.—Mr. F. Amorsolo, 10 hours a week, second semester.

*Etching*.—Mr. Miranda, 10 hours a week, second semester.

*Composition (Posters, Cartooning, Illustration)*.—Messrs. Miranda and F. Amorsolo, 10 hours a week, second semester.

## COURSES IN PAINTING

### FIRST YEAR

*Drawing from Antique Statuary I*.—Mr. Buenaventura, 10 hours a week, second semester.

<sup>1</sup> Common for all Departments of Instruction.

*Drawing from Antique Statuary II.*—Mr. Buenaventura, 10 hours a week, second semester.

*Drapery and Still Life.*—Mr. Miranda, 10 hours a week, second semester.

*Elementary Decorative painting I.*—Mr. De la Rosa, 10 hours a week, second semester.

*Perspective.*—Dr. Herrera, 2 hours a week, second semester.

*History of Art.*—Dr. Herrera, 3 hours a week, second semester.

### SECOND YEAR

*Drawing from Life I.*—Mr. Peralta, 10 hours a week, second semester.

*Coloring from Life I.*—Mr. Rivera, 10 hours a week, second semester.

*Anatomy.*—Dr. Herrera, 5 hours a week, second semester.

*Advanced Landscape I.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Elementary Decorative Painting II.*—Mr. De la Rosa, 10 hours a week, second semester.

### THIRD YEAR

*Coloring from Life II.*—Mr. Enriquez, 10 hours a week, second semester.

*Outdoor Sketches of Living Models.*—Mr. Rivera, 10 hours a week, second semester.

*Drawing from Life II.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Advanced Landscape II.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Decorative Composition.*—Mr. De la Rosa, 10 hours a week, second semester.

### FOURTH YEAR

*Composition.*—Mr. Enriquez, 10 hours a week, second semester.

*Portrait.*—Mr. Enriquez, 10 hours a week, second semester.

*Drawing from Life III.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Advanced Landscape III.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Scenographic and Mural Decoration.*—Mr. De la Rosa, 10 hours a week, second semester.

## COURSE IN SCULPTURE

### FIRST YEAR

*Drawing from Antique Statuary I.*—Mr. Buenaventura, 10 hours a week, second semester.

*Perspective.*—Dr. Herrera, 2 hours a week, second semester.

*History of Art.*—Dr. Herrera, 3 hours a week, second semester.

*Elementary Modeling of Ornaments.*—Mr. Francisco, 10 hours a week, second semester.

*Elementary Relief Modeling of figures.*—Mr. Francisco, 10 hours a week, second semester.

### SECOND YEAR

*Anatomy.*—Dr. Herrera, 5 hours a week, second semester.

*Ornamental Composition.*—Mr. Francisco, 10 hours a week, second semester.

*Modeling from Statuary.*—Mr. Francisco, 10 hours a week, second semester.

*Drawing from Life I.*—Mr. Peralta, 10 hours a week, second semester.

### THIRD YEAR

*Modeling from Life I.*—Mr. Francisco, 10 hours a week, second semester.

*Drawing from Life II.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Molding.*—Mr. Francisco, 10 hours a week, second semester.

### FOURTH YEAR

*Composition.*—Mr. Francisco, 10 hours a week, second semester.

*Modeling from Life II.*—Mr. Francisco, 10 hours a week, second semester.

*Drawing from Life III.*—Mr. F. Amorsolo, 10 hours a week, second semester.

## COURSE IN ENGRAVING

### FIRST YEAR

*Drawing from Antique Statuary I.*—Mr. Buenaventura, 10 hours a week, second semester.

*Perspective.*—Dr. Herrera, 2 hours a week, second semester.

*History of Art.*—Dr. Herrera, 3 hours a week, second semester.

*Wax Modeling of Ornaments in Bas-relief.*—Mr. Morales, 10 hours a week, second semester.

### SECOND YEAR

*Anatomy.*—Dr. Herrera, 5 hours a week, second semester.

*Wax Modeling in Relief of Ornamental Composition.*—Mr. Morales, 10 hours a week, second semester.

*Wax Modeling of copies in Bas-Relief.*—Mr. Morales, 10 hours a week, second semester.

*Drawing from Life I.*—Mr. Peralta, 10 hours a week, second semester.

### THIRD YEAR

*Modeling from Life in Bas-Relief.*—Mr. Morales, 10 hours a week, second semester.

*Composition in Bas-Relief.*—Mr. Morales, 10 hours a week, second semester.

*Bronze Engraving in Bas-Relief.*—Mr. Morales, 10 hours a week, second semester.

*Drawing from Life II.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Practice in Machinery.*—Mr. Morales, 10 hours a week, second semester.

### FOURTH YEAR

*Modeling from Life (in Group).*—Mr. Morales, 10 hours a week, second semester.

*Composition in Bronze in Bas-Relief.*—Mr. Morales, 10 hours a week, second semester.

*Drawing from Life III.*—Mr. F. Amorsolo, 10 hours a week, second semester.

*Practice in Machinery.*—Mr. Morales, 10 hours a week, second semester.





